

January 13-15th
2012

Mission High
School
San Francisco,
CA



Creating Balance in an Unjust World

**Conference on Math Education
and Social Justice**

Welcome

Welcome to the fourth conference on mathematics education and social justice. The Creating Balance in an Unjust World conference brings together educators, parents, students, activists and community members to explore the connections between math education and social justice.

Through school visits, workshops, and featured speakers we hope to strengthen and extend the network of educators who implement social justice curricula, promote the use of alternative assessments, and explore culturally relevant and accessible math programs at schools and community groups across the country.

This conference exists because of your continued work in the field of mathematics education at schools, universities and in local communities. Through your struggles in sustaining and campaigning for educational justice, we continue to strengthen our network.

Your participation and contributions help to keep the conference accessible for educator and youth participants. Thank you for participating in this conference and joining us in this journey.

This conference is primarily organized by current and former public school teachers. We are open to having other voices and people participate in the planning of future conferences.

Schedule

Friday, January 13th

All Day School Visits

6:30 PM Networking Event

Saturday, January 14th

8:00 - 9:00 AM Registration and Breakfast

9:00 - 10:00 AM Keynote (Auditorium)

10:00 - 11:20 AM Workshop Session 1

11:30 - 12:30 PM Lunch (Cafeteria)

12:30 - 1:50 PM Workshop Session 2

2:00 - 3:20 PM Workshop Session 3

3:30 - 4:30 PM Featured Panelists (Auditorium)

Panel Theme: How can we create equity in mathematics achievement and access to higher educational opportunities? Voices from the field: teacher, student, administrative perspectives

Sunday, January 15th

9:00 - 10:00 AM Networking Breakfast

10:00 - 11:20 AM Workshop Session 4

11:30 - 1:00 PM Working Meetings, Lesson
Planning Space, Networking
(Lunch provided)

School Visit Sites

Mission High School

With a strong focus on equity, inclusion, and Anti-Racist Teaching to ensure that all of our students are supported to the fullest we have three critical school-wide goals:

Utilizing student work to drive instruction, inform our teaching practices, and support student achievement at the highest level. Emphasis on Post-Secondary Success at all grade levels to ensure that our students are academically prepared, eligible, and have a deep awareness of all post-secondary options upon graduation from high school. School wide Family Engagement Plan to create meaningful partnerships, build strong relationships, and deepen avenues of communication with all of our families in order to support our students from the moment they enter our front door.

Thurgood Marshall High School

Founded in 1994, TMAHS is a comprehensive public high school located in the Bayview-Hunter's Point neighborhood of San Francisco. At TMAHS, we strive to raise the quality of education for the diverse student body that we serve. Collectively, we are a community of learners seeking to develop all individuals academically, physically, socially, and emotionally in a healthy, safe, respectful, and cooperative learning environment. Our overall focus is centered on equipping our students with the necessary tools to develop into active and contributing members of their communities, to succeed in their chosen college or career paths and to become independent, life-long learners.

Since 2008, the Math Department has been involved in implementing a pilot program for the national mathematics reform program known as The Algebra Project. Teachers have been working with cohorts of students from Algebra I through Pre-Calculus topics using various materials from the Algebra Project. Students were initially selected to participate in this program based on their need to take Algebra I as freshmen and their academic records, which indicated that they had struggled with mathematics in the past. In addition to using experience-based Algebra Project materials, cohorts of students have been provided with additional support by having twice the amount of time in their math class, as well as varying levels of help provided by visiting administrators and mathematicians. Throughout the four years of implementation, students in these classes have shown an increased interest and understanding in mathematical topics and have developed habits of persistence in studying and doing mathematics.

Keynote Speaker



Lisa D. Delpit

Currently the Felton G. Clark Professor of Education at Southern University in Baton Rouge, Lisa D. Delpit is the former Executive Director/Eminent Scholar for the Center for Urban Education & Innovation at Florida International University, Miami, Florida. She is also the former holder of the Benjamin E. Mays Chair of Urban Educational Excellence at Georgia State University, Atlanta, Georgia. Originally from Baton Rouge, Louisiana, she is a nationally and internationally-known speaker and writer whose work has focused on the education of children of color and the perspectives, aspirations, and pedagogy of teachers of color. Delpit's work on school-community relations and cross-cultural communication was cited as a contributor to her receiving a MacArthur "Genius" Award in 1990. Dr. Delpit describes her strongest focus as "...finding ways and means to best educate marginalized students, particularly African-American, and other students of color." She has used her training in ethnographic research to spark dialogues between educators on issues that have impact on students typically least well-served by our educational system. Dr. Delpit is particularly interested in teaching and learning in multicultural societies, having spent time studying these issues in Alaska, Papua New Guinea, Fiji and in various urban and rural sites in the continental United States. She received a B.S. degree from Antioch College and an M.Ed. and Ed.D. from Harvard University. Her background is in elementary education with an emphasis on language and literacy development.

Dr. Delpit's recent work has spanned a range of projects and issues, including assisting urban school districts engaged in school restructuring efforts; founding the post-Katrina National Coalition for Quality Education in New Orleans; recruiting renowned mathematician and Civil Rights leader, Dr. Robert Moses to South Florida to establish the national Algebra Project; assisting in the creation of high-standards, innovative schools for low-income, urban children; and developing urban leadership programs for teachers and school district central office staff. She has also taught pre-service and in-service teachers in many communities across the United States.

Keynote Speaker (cont'd)

Her numerous awards include the Harvard University Graduate School of Education 1993 Alumni Award for Outstanding Contribution to Education; the 1994 American Educational Research Association Cattell Award for Outstanding Early Career Achievement; 1998 Sunny Days Award from Sesame Street Productions for her contributions to the lives of children; and the 2001 Kappa Delta Phi Laureate Award for her contribution to the education of teachers.

Dr. Delpit was also selected as the Antioch College Horace Mann Humanity Award recipient for 2003, which recognizes a contribution by alumni of Antioch College who have “won some victory for humanity.” Winning candidates are those persons, or groups of persons, whose personal or professional activities have had a profound effect on the present or future human condition. She was also selected to deliver the prestigious DeWitt Wallace-Reader’s Digest Distinguished Lecturer Award at the Annual Meeting of the American Educational Research Association (AERA). The award recognizes the contributions of an educational researcher whose work leads to improved learning for low income, elementary or secondary students.

Her book, *Other People’s Children*, has received the American Educational Studies Association’s “Book Critic Award,” *Choice Magazine’s* Eighth Annual Outstanding Academic Book Award, and has been named “A Great Book” by *Teacher Magazine*. Some of her other books include: *The Real Ebonics Debate: Power, Language, and the Education of African-American Children*; and *The Skin That We Speak: Thoughts on Language and Culture in the Classroom*. She is currently working on a book on creating excellence in urban educational settings.



Featured Panelists



Carlos Cabana

I've chosen to teach mathematics in diverse working class schools because of math's ability to convince students of their intellectual place in this world. I try to design curriculum that will support students talking and working together in groups, so that they can value each others' contributions to learning. As students work, I circulate to catch them

demonstrating smartness, and I make sure I give kids specific feedback on what I see them doing that I think is smart. My best teaching days are when I get kids to smile huge, prideful smiles! This is my 22nd year of teaching following a BA in economics at UC Berkeley.



Taica Hsu

Taica Hsu has been a math teacher at Mission High School for 5 years. He received his undergraduate degree from Dartmouth College and a masters and teaching credential from Stanford University. Taica uses a lot of groupwork in his classroom and he tries to build in as many opportunities as possible for students

to analyze and interpret real world contexts with mathematics. Some of his favorite projects include: the GeoHouse, San Francisco Neighborhoods Project and Examining the Effect of Gentrification Through Rates and Integrals. Taica is a National Board Certified Teacher and also a Master Teacher through the Math for America program in Berkeley.

Featured Panelists (cont'd)



Greg Peters

Gregory Peters is school reform leader with a longstanding history working within both local and national efforts. As Principal of San Francisco’s Leadership High School, Gregory and his teachers effectively created a National Demonstration and Mentor School that made progress in closing the racial achievement gap and was “highly commended for... graduating all their students – of every race/ethnicity – University of California eligible.”

Building from his successful experiences and results, Gregory now leads The San Francisco Coalition of Essential Small Schools, which, now in its sixth year, is committed “to interrupt and transform current and systemic educational inequities to ensure all students have access to personalized, equitable and high performing schools that believe and demonstrate each student can, should and will succeed.” Towards this mission, Gregory facilitates educational transformation throughout the nation.

Gregory’s instructional expertise and leadership in curriculum and school design; data based inquiry; and equity-centered professional development have resulted in a number recognitions including CESN’s “Commitment to Equity Award” and CANEC’s “Innovations in Excellence Award”.

Gregory obtained his doctorate degree at California State University East Bay in Educational Leadership & Social Justice.

Featured Panelists (cont'd)



Carolee Koehn

Carolee Koehn currently serves as the Co-Director of the UCLA Mathematics Project and Director of the UCLA Parent Project. Carolee founded Math is More Than Numbers, a professional development institute that seeks to engage teachers in issues of equity within mathematics education. She earned a doctorate degree in the Diversity in Mathematics Education (DiME) program in Urban Schooling at UCLA and is a former high school mathematics teacher in Los Angeles Unified School District.



Destiny Joseph

I am a senior at Mission High School and I am finishing my first semester of Advanced Placement Calculus. In my freshman year of high school I hated math because I believed I couldn't do it. As the years went on I began to realize that it's not about being smart at everything, but that everyone has something they are good at.

Featured Panelists (cont'd)

Jo Boaler

Dr. Jo Boaler is a Professor of Mathematics Education at Stanford University. Former roles have included being the Marie Curie Professor of Mathematics Education at the University of Sussex, England, a mathematics teacher in London comprehensive schools and a researcher at King's College, London. Her PhD won the national award for educational research in the UK and her book: *Experiencing School Mathematics* won the 'Outstanding Book of the Year' award for education in Britain. She is an elected fellow of the Royal Society of Arts (Great Britain), and a former president of the International Organisation for Women and Mathematics Education (IOWME). At Stanford University she won an 'Early Career Award'; from the National Science Foundation. Her latest book *What's Math Got To Do With It?* (2008/ 2009) published by Penguin, aims to increase public understanding of the importance of mathematics, and the nature of effective teaching approaches.

(taken from <http://explorecourses.stanford.edu/CourseSearch/instructor?sunet=joboaler>)

Workshop Session 1

Equitable Practices in Mathematics for English Language Learners

Luz Chung, Cheryl Forbes, Caren Holtzman

University of California, San Diego

Room 222

E,M,UG,GS,PF

In this interactive workshop participants will experience lessons and strategies for modifying math instruction to meet the needs of English learners. Participants will learn about the challenges that English learners face in math class. Participants will increase their awareness of the importance of talk in math class, add to their knowledge of academic language, understand how levels of English proficiency affect students' ability to participate in math lessons, and learn strategies to help ELs at all proficiency levels successfully engage in mathematics.

A social justice-oriented approach to mathematics for preservice K-8 teachers

Ksenija Simic-Muller, José Maria Menéndez

Pacific Lutheran University

Tacoma, WA

Room 218

E,M,GS,P,Y

The workshop seeks to bring together teacher educators, teachers, and community members who believe that mathematics courses for preservice teachers should have a social justice and equity focus, and begin a conversation about developing such courses. Facilitators will share social-justice-oriented lessons and assignments they use in their mathematics content courses for preservice K-8 teachers, share samples of student work, and describe some of the successes, setbacks, and tensions they have encountered in their work. Participants will generate ideas for future social-justice-oriented lessons potentially relevant to preservice teachers.

Workshop Session 1 (cont'd)

YPP's Quad City Project: Youth-Led Math Literacy Outreach Work in the Afterschool Environment

Chad Milner, Leide Cabral

Young People's Project (YPP)

Cambridge, MA

Room 328A

E, M, HS, UG, GS, PF, PS, Y, C

Fractal Geometry is the study of mathematical fractals, geometric shapes or images that can be split into parts that are each reduced copies of the entire image. The Young People's Project "Quad City" Module explores the mathematics behind fractals using the coordinate plane and geometric images. The mathematical concepts covered throughout the module include addition, subtraction, multiplication, fractions, understanding length and width, Coordinate Plane transformations (Translations, Reflections, and Scaling), infinity, and can even extend to probability and the idea of randomness.

Talking Back to the Statistics: Mathematics as a tool for inquiry into the issue of gun violence

Jessica Hopson

Portland Youth Builders

Portland, OR

Room 317

M, HS

In this interactive workshop, I will share a unit I designed and taught, which explores the impact of gun violence on teens and children. Participants will engage in critical thinking as they work through key lessons within the unit. Through questioning, inquiring, and relating personal experiences, participants will "talk back" to the statistics in order to gain greater understanding of the meaning and implications of each number. Finally, participants will offer their critique, specifically discussing how they would expand and deepen the unit in order to encourage students to take action against gun violence.

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Workshop Session 1 (cont'd)

Social Justice Mathematics for Re-engagement

Vivian Lim, Naomi Leapheart

University of Pennsylvania

Philadelphia, PA

Room 325

E, M, HS, UG, GS, PF, PS, Y, C

This session presents the collaboration between a teacher and a doctoral student in implementing social justice mathematics lessons in a re-engagement center for out-of-school and formerly adjudicated youth. Our goal is that through lessons that engage youth in mathematics to explore issues in their lives and community, youth will learn the mathematics required to pass the GED examination and more importantly grow as critical and empowered members of society. In this session, we present an activity that we have designed and also facilitate a discussion about the particular possibilities and challenges of using social justice mathematics in alternative educational settings.

Culturally Responsive Math Education: Engaging All Students in Meaningful Learning

Bernd Ferner

Portland State University

Portland, OR

Room 209

E, M, GS, PF

Students from diverse backgrounds encounter culture and language related challenges. Research presentations, discussions and activities mix in this workshop to demonstrate methods that are sensitive to cultural identity and support community building in order to enhance math learning in upper elementary / middle schools classrooms. Participants will be engaged in authentic classroom activities that help students to bring their culture into the classroom and to connect with the content. Drawing on personal experience as a 5th grade teacher as well as a researcher, I propose that the activities presented are useful classroom tools. Participants will receive an activity guide.

Workshop Session 1 (cont'd)

Too Pretty to Do Math: Gender as a Gatekeeper to Math Literacy

Lacy Asbill, Elana Metz

Girls Moving Forward

Emeryville, CA

Room 311

E, M, HS, PS, Y

As educators, we can do our best to hone our craft and continually improve our instruction. But how do we co-teach alongside harmful messages that consistently tell girls that what our society values in them is not their intelligence, but their appearance? In this interactive session, we will explore data around gender and math literacy, share effective lesson plans and teaching strategies, and discuss ways to address the cultural, social, and emotional gatekeepers that influence middle and high school girls' choice to opt out of higher-level math achievement.

Reconceptualizing the Mathematics in a Social Justice

Mathematics Classroom

Marty Romero

University of California, Los Angeles

Room 224

M, HS, UG, GS, PF

This workshop will present a working definition of mathematics that can be used to help educators implement social justice in their classroom while at the same time ensuring that the mathematics maintains its rigor. Additionally, participants will see how partnering this definition with the new Common Core Standards gives standing for math educators to redefine what the mathematics content and instruction looks like in their classrooms. Sample activities, projects, and instructional strategies will be shared. This workshop is intended for classroom teachers and faculty advisors of pre-service teachers.

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Workshop Session 2

Engaging Middle School Students in the Real World

Marna Herrity

Brooklyn Friends School

Brooklyn, NY

Room 311

M

Participants will learn about activities and projects in which students use mathematics to examine the world around them with a critical lens. The math concepts of statistical analysis, number sense, and correlation, will be explored through the following social justice issues: gender (in)balance, the cost of war, and economic (in)equity. Student work will be shared. Workshop participants will have the opportunity to contribute ideas and relevant work from their curriculum, if they so desire.

MathAction: Young People Blend the Precision of Math with the Ambiguities of Complex Social Problems

Tamar Posner, Sara Collina

Math Action

Oakland, CA

Room 325

M, HS, GS, PF, Community

This presentation provides an overview of MathAction, an innovative math program for grades 7-10 that blends mathematics, economics, geography and social studies. MathAction sparks students' intellectual curiosity by connecting mathematics to key social issues of our time, from resource distribution to human rights to environmental justice. Emphasis is placed on how the program blends the precision of mathematics with the inevitable ambiguities of complex social problems. After an overview of MathAction (which includes exhibits of student work), students will facilitate a debate on wealth distribution based on a thought experiment conducted in their own MathAction class.

Workshop Session 2 (cont'd)

Et tu, mathematics? Identifying the hidden curricula of mathematics education

Anita Bright, Erin Sylves

Portland State University

Portland, OR

Room 328A

E, M, HS, UG, GS, PF, PS, Y, C

Is mathematics neutral? What other lessons, aside from math, are embedded in the materials we provide to students? What values are implied and transmitted by the problems we choose and the texts we share? We'll analyze textbooks, trade books, and standardized tests and discuss whether these match the values we espouse. Detailed electronic handout provided.

Mathematics Teachers' Assessment Practice in Diverse Classrooms: equity in assessment in mathematics classrooms

Gabriela Groza, Anne-Marie Marshall

University of Illinois at Chicago

Room 209

E, M, HS, GS, PF, C

Facilitators will share insights and experiences from working with teachers in culturally and linguistically diverse classrooms. We will engage participants in a discussion about the intersection of student diversity and assessment practice. We will examine current literature to guide the discussion and participants will work together to generate ideas about assessment practice that goes beyond acknowledging diversity in mathematics classrooms. The goal of the session is to identify and share assessment strategies that best serve diverse students.

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Workshop Session 2 (cont'd)

Gender-Complex Mathematics Education: Transcending the Gender Binary in the Math Classroom

Kat Rands

Elon University

Chapel Hill, NC

Room 222

E, M, HS, UG, GS, PF, PS, Y, C

Gender equity has long been a goal in mathematics education. However, most discussions of gender equity in mathematics education have focused on differences between girls and boys and have overlooked the complex nature of gender. Recent developments in gender theory open up new possibilities for examining gender in mathematics in more complex ways that take into consideration transgender people. In this interactive workshop, participants will explore possibilities for teaching mathematics in more gender-complex ways. Educators, researchers, parents, activists, and students are invited to participate.

Organizing for Success: The Link between Organizing and the Math Classroom

Sarah Arvey

Catherine and Count Basie MS 72

Queens, NY

Room 317

E, M, HS, UG, GS, PF, PS, Y, C

This workshop will be a model of a restorative circle, which can be used as a method of classroom organizing. In a classroom based on social justice and restorative practices, it is important for all voices to be heard. The circle practice is derived from indigenous teachings and practices and has been used around the world as a method for non-hierarchical discussion and non-punitive consequences. The goals of circles are to address the needs of the community, which can be social, emotional, and/or academic in nature. In the classroom circles can be used for get-to-know you activities, leadership/team building practices, direct instruction, games, review, group learning, intervention, and much more.

Workshop Session 2 (cont'd)

“Math is a powerful tool”: Transformative Resistance through Youth Participatory Action Research in the Math Classroom

Mary Candace Full

Humanities Academy of Art and Technology

Los Angeles, CA

Room 218

E, M, HS, UG, GS, PF, PS, Y, C

Audre Lorde said, "The master's tools will never dismantle the master's house." This presentation explores the possibilities and challenges of engaging students in Youth Participatory Action Research - using YPAR as a classroom pedagogy, while challenging the oppressive nature of our school system. Facilitated by a teacher at a progressive pilot school in East Los Angeles, Mary Candace will share about a student-led project on food justice in an Algebra 1 class, and we will together discuss student voice and empowerment in the math.

A Social Justice Data Fair: Active Inquiry as Critical Pedagogy

Michelle Munk, Beth Alexander

City View Alternative Senior School, The Linden School

Toronto, Canada

Room 224

E, M, HS

Students become critical mathematicians when they are actively engaged in the production of mathematical knowledge in the classroom. This workshop, aimed at teachers of all levels, will explore social justice math pedagogy through our experiences with our school's Social Justice Data Fairs. We will examine some pedagogical styles that support social justice curriculum in the math classroom to empower student learning. Using examples of student work, we will illustrate how students from Grades 1 to 12 used data management skills to better understand issues of social justice in our Data Fair. Workshop participants will complete several hands-on activities that illustrate the importance of using an inquiry-based approach in the classroom. Participants will receive materials to support the implementation of a Social Justice Data Fair in their own schools.

Workshop Session 2 (cont'd)

Complex Instruction Sessions*

Workshop Sessions 2 and 3

Rooms 330 and 332

Facilitated by Carlos Cabana, Lisa Jilk, Taica Hsu and Tol Lau

Complex Instruction evolved from over 20 years of research by Elizabeth Cohen, Rachel Lotan, and their colleagues at the Stanford School of Education. The goal of this instruction is to provide academic access and success for all students in heterogeneous classrooms.

*This session is open to participants who pre-registered and committed to classroom visits, two workshop sessions and a lesson planning session.

Workshop Session 3

Finance my Life

Beth Wehner, Tina Lee, Lisa Parziale
El Puente Academy for Peace and Justice
Brooklyn, NY
Room 311

M, HS, PS

Participants will experience several activities from the "Finance My Life" curriculum which is El Puente Academy's 9th grade introductory math unit. The unit was created to give students a basic understanding of financial topics such as budgeting, loans, taxes, savings etc. while remediating basic math skills. Participants will engage in discussion regarding the importance of financial literacy for self-determination and have an opportunity to create further activities for integration in their curriculum. Participants who bring a flash drive can leave with a digital copy of the entire curriculum.

Equity for Underserved Students: Using Place-Based Mathematics in the Classroom

Katie Hendrickson
Athens Middle School, Ohio University
Albany, OH
Room 325

E, M, HS, GS, PF

Place-based education, which connects issues of local relevance to educational goals, can engage and inspire students of mathematics. However, examples of curricula are not widely distributed and are difficult to find. In this interactive session, several examples of place-based mathematics lessons will be presented, along with a description of the development process for each. Participants are encouraged to bring their own examples and ideas for developing new lessons for their local community. A Google Group will be established for participants to post lessons, ideas, and resources, and to collaborate in developing more place-based lessons.

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Workshop Session 3 (cont'd)

Integrating multicultural and social justice mathematics across the K-12 curriculum: a hands-on workshop

Helen Kress, R. Gamble, C. Lalonde, C. March, P. Piotrowski
D'Youville College

Buffalo, NY

Room 218

E, M, HS, PS, Y, C

Opportunities abound for integrating mathematics and equity into content area learning. This workshop will demonstrate how social justice and multicultural mathematical activities can be integrated across the K-12 curricula. Facilitators will engage participants in meaningful activities to enhance mathematical literacy. Following a brief orientation, participants will rotate among four stations that illustrate social justice in mathematics throughout the grades and across the curricula. They will also experience a variety of creative lessons that offer practical mathematical applications for the lives of their students. A pamphlet with additional resources for implementation will be available from each of the four groups.

All Kids Are Smart: Addressing Status Issues in the Math Classroom

Breedeem Murray, Geetha Lakshminarayanan

Live Oak School, San Francisco, CA

Summit Preparatory Charter High School, Redwood City, CA

Room 224

M, HS

When we ask students to work together, issues of status will arise. Some students will be labeled “smart”, others as “not smart”. Teachers can learn to notice and to interrupt this practice, ensuring that each student’s perspective is heard and valued, that all students have equitable access to materials, and that questions are asked without fear or shame. Participants will explore the role that attitudes towards learning and teacher moves play in changing students’ status. We will analyze, practice, and refine methods to introduce and facilitate group work that challenge labels and raise the status of students.

Workshop Session 3 (cont'd)

Together We Can: How engaging a community partnership helped develop student and teacher support programs, providing early access to Algebra I

Laurie Speranzo, Christine Hall

MathPOWER and the Boston Public Schools Secondary Math Department

Boston, MA

Room 317

M, HS, UG, GS, PF, PS, Community

Boston Public Schools partnered with MathPOWER, an educational nonprofit, to create a strong support system for teachers and students, providing greater foundational skills for Algebra I in the 8th grade. We provided deep professional development and support for teachers. To improve student success in advanced mathematics, we created a hands-on, motivating curriculum to help close the achievement gap. This workshop will show how using experience-based outside-of-school-time programs for both teachers and students can help level the playing field. Specific lesson plans (including ones based on ethnic diversity) and opportunities to discuss and develop ideas with participants will be provided.

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Workshop Session 3 (cont'd)

Classroom experiments: Action research towards teaching mathematics for social justice

Indigo Esmonde, Beth Alexander, Krissy Budny, Lisa Cantor, Matthew DeClerico, Michelle Munk, Kaya Tache-Green

University of Toronto, Radical Math Study Group

Toronto, Canada

Room 328A

E, M, HS, UG, GS, PF

This session is presented by the Radical Math Study Group. We worked together to plan and implement action research projects to teach mathematics more equitably. In this presentation, we will share five projects, some of which are related to introducing social justice issues in mathematics classrooms, and some of which are related to more effective pedagogy for abstract mathematics and problem-solving. Materials and data collection tools from the projects will be shared. Following the presentations, participants will be invited to generate their own action research questions, network, and form an online community.

How do I Teach Preservice Elementary Teachers to Teach Mathematics Using Social Justice Contexts When Both They and Their Students are Privileged?

Joan Kwako

University of Minnesota Duluth

Room 209

E, HS, HS, UG, GS, PF

It is one thing to use social justice contexts when those contexts are real to the preservice teachers you are teaching, not to mention to the elementary students they are teaching. It is quite another when 92% of your preservice teachers and their students are white, middle/upper class, and have rarely, if ever, experienced any type of discrimination due to their race, ethnicity, or socio-economic status. This presentation will document ways in which one can work to overcome the challenges of trying to enlighten preservice teachers of the importance of teaching using contexts that are outside of their own reality.

Workshop Session 3 (cont'd)

Teaching mathematics to English language learners using Robert Moses' Five-Step Approach in a pre-service teacher learning community

Kristin Tamayo, Paula Catbagan, Mario Lopez, Ji Yeong I, Ruth Ahn, and Pamela Walker

California State Polytechnic University, Pomona and University of Missouri, Columbia

Room 222

E, M, HS, UG, GS, PF, PS, Y, C

Presenters will discuss Robert Moses' Five-Step Approach as a framework to teach abstract mathematical concepts to English Learners in a pre-service teacher learning community called the Teachers Radically Enhancing Education (T.R.E.E.) Project. The pre-service teachers use hands-on, multi-sensory methods of learning (Visual, Auditory, Kinesthetic, Tactical) to provide meaningful learning experiences to students. Conference participants will be divided into groups, rotating through three stations and experiencing how the Five-Step Approach can be applied in mathematics teaching. At the end, student presenters will share what they learned from working with English Learners and how this experience transformed the presenters' thinking about teaching.

Complex Instruction Sessions*

Workshop Sessions 2 and 3

Rooms 330 and 332

Facilitated by Carlos Cabana, Lisa Jilk, Taica Hsu and Tol Lau

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Workshop Session 4

Math Circles as Equitable Engagement in Rich Mathematics: Experience of building a Math Circle in an inner city public high school

Sage Moore

Skyline High School

Oakland, CA

Room 209

E, M, HS, UG, GS, PF, PS, Y, C

While Math Circles are offered throughout the Bay Area, they are still not accessible for most under-resourced students. So if the kids cannot make it to there, let's bring it to them. When the constraints that prevent students from participating are removed, students showed! At Skyline High School, we structured a Math Circles to meet the needs of underperforming kids and courted these students to attend. Not only did students voluntarily engage in math rich and challenging work outside of class time, the experience help this math teacher withstand the caustic school environment. A diverse group of mostly under-performing math students participated and helped create a supportive environment to explore deep mathematics. In this workshop, we will share our experience of creating and running the Skyline Math Circle. We will lead you through a short Math Circle activity and share the strategies we used to make our Math Circle a success.

Enjoyable Ways to Learn Math Facts via Magic, Puzzles, Games, & Activities

Nancy Blachman

Math Delights, Nueva School, Princeton Day School

Burlingame, CA

Room 311

E, M, PS, Youth

Foster delight, develop children's basic math skills, and engage them in higher-level thinking with magic tricks and puzzles.

Workshop Session 4 (cont'd)

Supporting Teachers Work on Equity

Diane Resek, Judy Kysh, Katherine Ramage

San Francisco State University

Room 328A

M, HS, PF, UG, GS

In the REAL project we worked with teachers to support their efforts to make algebra accessible to more students. We stressed richer problems and strategies to make math more engaging, and we raised issues of how culture affects the classroom. We had mixed results at changing classrooms. In all the schools that changed, teachers worked on math problems together to build a “mathematical trust.” That trust seems to have created an atmosphere where discussion of sensitive issues became more productive. In this session, participants will work on a rich problem and an activity that shows the relation of structure to engagement. Our work on cultural issues will be discussed.

Teaching Mathematics for Social Justice: Getting Started and Continuing to Grow

Rico Gutstein

University of Illinois at Chicago, Teachers for Social Justice (Chicago)

Room 224

E, M, HS, UG, GS, PF, PS, Y, C

Learning to teach mathematics for social justice is challenging. Teachers have to navigate school and district mandates while simultaneously trying to develop innovative curriculum that ties into students’ cultures, language, knowledge, and experiences—and make sure students learn both math and about their world. In this workshop, I will use video and student voice to share some of my development over 15 years of developing and teaching mathematics for social justice in Chicago public schools. In particular, I will talk about how teachers can “get started,” and just as important—how they can continue to grow over the long term.

E-Elementary School Teachers, **M**-Middle School Teachers, **HS**-High School Teachers, **UG**-Undergraduate Students, **GS**-Graduate Students, **PF**-Professors/Faculty, **PS**-Parents, **Y**-Workshop audience may include youth, **C**-Workshop audience includes community members and activists

Workshop Session 4 (cont'd)

Mathematical Models: Bringing Social and Environmental Justice into the Mathematics Classroom

Lily Khadjavi Loyola Marymount University, Los Angeles

Emek Kose St. Mary's College of Maryland, St. Mary's City

Frank Lynch Occidental College, Los Angeles

Room 325

HS, UG, GS, PF, C

This is an interactive session designed to develop specific mathematical models and analyze data, integrating social justice issues with the mathematics. For example, LAPD traffic stop data allow us to study the issue of racial profiling. Oceanographic imagery and oil spread models counter BP's claims for the Gulf Spill. Models of asthma near freeways inform discussions on fair housing policies. Optimal harvesting models relate to sustainability of resources. Breakout groups will discuss these contexts and the high school or college mathematics needed. Participants are encouraged to bring references/questions/ideas and will leave with lesson plans, examples and new partners for consultation.

What is the Algebra Project? How can it empower teachers to rethink curriculum?

Evan Rushton, Jose Antonio Orozco, Susan Malgarejo, Marcus Hung
Franklin High School in LAUSD, Academia Avance Charter in LA,
Thurgood Marshall Academic High School in SFUSD

Room 218

E, M, HS, UG, GS, PF, PS, Y, C

This interactive workshop will help participants explore the pedagogy of the Algebra Project and help teachers think about how they can get in on the ground level of creating meaningful curriculum. Experienced high school Algebra Project teachers will facilitate the workshop that will incorporate the Algebra Project's 5-step curricular process: A vehicle for empowering students as they discover they have a mathematical voice.

Workshop Session 4 (cont'd)

Drawing Upon the Core Components of a Problem-Based Curriculum to build a Mathematics Lesson for Social Justice

Brian R. Lawler *California State University, San Marcos*

Sherry Fraser *Interactive Mathematics Program*

Room 317

M, HS, UG, GS, PF

Examine and define the core components of a problem-based curriculum and an associated pedagogy that brings forth both powerful mathematical learning and equitable relationships within the classroom. Having identified these, workshop participants will consider how to draw upon these components to develop meaningful lessons that are generated by the students in response to local issues of social justice. Small groups will develop draft units and share the framework with other attendees. This session will be oriented toward upper grades (7-12) mathematics teachers.

Opening the Algebra Gate: A Pre-Statistics Path to Transfer-Level Math

Hal Huntsman, Lily Lum, Tue Rust

City College of San Francisco, Los Medanos College Pittsburg, CA

Room 222

UG, PF

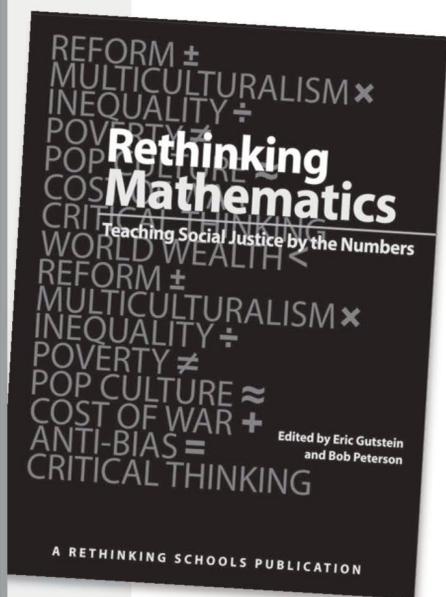
For community college students with majors in behavioral and social science (and many others), who have statistics in their transfer path, algebra is a huge barrier. This session introduces participants to a new course, Preparation for Statistics, that prepares students for transfer-level statistics, but is not the traditional algebra sequence that so many students take—and too often fail. Using a problem-centered pedagogy, the course engages with questions meaningful to students and their communities and promotes discussion of social inequity. The session will include an interactive exercise similar to those used in the course, as well as preliminary results from the Fall 2011 pilot at City College of San Francisco.

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– *Teaching Tolerance* magazine

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and assistance from NYCoRE & T4SJ.**

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