

Workshop Session 1

Developing Computational Fluency with all Elementary School Math Students: An Issue of Rigor and Equity in the Schools Rather than Inequity outside of School

Julie Broderick

The School at Columbia University

New York, NY

Room 209

E, PS, PF, UG, GS

An elementary math classroom that develops computational fluency in a rigorous way will provide students with an equitable opportunity to succeed in middle and high school math. When elementary math teachers are knowledgeable about how best to develop computationally fluent students, then families have great confidence in a school's well-balanced math program. Families with greater financial resource are less likely to seek outside test prep organizations and private tutors to work intensively with their children, thus allowing for all students to benefit from the same, rich school math program. It becomes a concerning issue of equal access when some students are receiving significantly different outside math instruction from those students whose families are relying on the school for this education. This conference session will examine how elementary school teachers can incorporate this work with number fluency into their balanced math workshop. How can whole class number string sessions and connected homework develop all students' flexibility, accuracy, and efficiency when adding, subtracting, multiplying, and dividing?

Intended Audience Guide

E-Elementary School Teachers, **MS**-Middle School Teachers, **HS**-High School Teachers,

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PS-Parents, **Youth**-Workshop audience may include youth, **Community**-Workshop audience includes community members and activists

Workshop Session 1 (cont'd)

Students Becoming Socially Conscious Mathematicians

Marty Romero

UCLA

West Covina, CA

Room 222

MS, HS, PF, UG, GS

This workshop will examine the meaning of a socially conscious-critical mathematics pedagogy. Additionally, a working definition of mathematics will be presented that can be used to help educators implement social justice in their classroom while at the same time engaging students in the practice of mathematics. Sample activities, projects, and instructional strategies will be shared that can easily be partnered with the Common Core Standards and its Standards of Mathematical Practices.

Creating a Schoolwide Culture of Math: starting with the adults!

Marcus Hung, Bridget Brew, Crystal Proctor

June Jordan School for Equity

San Francisco, CA

Room 311

MS, HS, Community, PF, UG, GS

This interactive session will explore the process of establishing a strong foundation for creating a school-wide culture of mathematics. Often other school staff do not realize how their admissions of “I’m not good at math” undermine the equitable practices that we work hard to create within our classroom. The June Jordan School for Equity math team will share their experience of beginning to help fellow social justice educators understand the strong connection between equity and mathematics. This session will help participants begin to think through the practical steps to creating a schoolwide culture of equitable math practices at their own school.

Workshop Session 1 (cont'd)

Stereotypes + kids = inequity... and what you can do about it

Alison Park

Blink Consulting

Mill Valley, CA

Room 328A

E, MS, HS, Youth, PS, PF, UG, GS

We all know the stereotypes: Asians are good at math; girls aren't. And even though we know better, these generalizations still affect educators and students. In this workshop, participants will learn about stereotype threat and protection, and how we can interrupt those effects to empower all students to learn math without fear that who they are determines what they can achieve. For educators, parents/guardians and students, this session will explore a theoretical framework, practical language and strategies for understanding how stereotypes matter and how intentional intervention can create more equitable learning environments where every student is learning and thriving.

What is Fair & Equitable Instruction?: Teaching Critical Thinking versus Teaching to the High-Stakes Test

Cassandra Wallace, Chris Flaherty

Boston Arts Academy

Boston, MA

Room 306

E, MS, HS, Youth, PS, Community, PF, UG, GS

This interactive session will explore the multi-layered issues of teaching students who are required to pass high-stakes tests. With the increased pressures of NCLB and RTTT, math teachers are finding themselves spending more time on test prep and less time teaching critical thinking and problem-solving skills. According to statistics, students with disabilities and ELL students disproportionately fail such high-stakes tests. How can we ensure we are providing a quality education to all students (and help them pass these tests) while also brainstorming how we can be a force for change in current legislation?

Workshop Session 1 (cont'd)

Developing as Social Justice Math Educators in the Neoliberal Era

Mary Candace Full, Miruna Outa-Lascar, David Velasquez

High school teachers

Los Angeles, CA

Room 224

E, MS, HS, PF, GS, Teacher Educators

This collaborative workshop will focus on supporting the next generation of math teachers passionate about social justice. How can teachers and teacher education programs support new teachers to develop as critical math educators and work in solidarity to resist oppressive education policies opposing this work in schools? Facilitated by students and graduates of a social justice-focused teacher education program, we argue that the next generation of teachers needs to develop as critical math pedagogues and organizers, equipped with skills to fight for social justice curriculum. This workshop encourages the participation of teachers and teacher educators to devise collaborative action steps to be implemented in teacher education and to create a community listserv of educators to support each other in continuing this work.

Developing Children's Mathematical Agency -- to Write the World with Mathematics

Bryan Meyer, Brian R Lawler

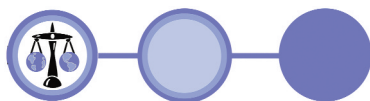
High Tech High North County

San Marcos CA

Room 325

MS, HS, PS

"Learners must see the need for writing one's life and reading one's reality." (Freire 1985). In this session, we will share classroom video of high school students engaged in mathematical activity, in a classroom intentionally designed to foster the sort of mathematical agency Freire encourages. The nature of classroom tasks and pedagogical challenges will be examined.



Workshop Session 2

Who gets pulled over?: Mathematics as a tool for exploring the (dis)proportionality of police traffic stop data

Jessica Hopson

Portland YouthBuilders

Portland, OR

Room 222

MS, HS

In this interactive workshop, I will share a unit I designed and taught, which explores whether police traffic stop data is proportionate to racial demographic data. Participants will engage in critical thinking as they work through key lessons within the unit. Through questioning, inquiring, and relating personal experiences, participants will discover who gets pulled over and discuss the meaning and implication of the proportionality of police traffic stop statistics. Finally, participants will offer their feedback on the unit, specifically discussing how they would use this unit to empower students to see themselves as agents of change.

Flagway Games

Marquis Lowe, Albert Sykes

The Young People's Project

Jackson, MS

Gymnasium

E, MS, Youth, PS

The Young People's Project has created board games and physical games that can be played in classrooms, gymnasiums, and playgrounds that capitalize on young students propensity for running, the galvanizing energy of team competition.

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Workshop Session 2 (cont'd)

'I feel so included. For once.' Engaging and involving parents in a non-deficit way to affect change.

Carolee Koehn Hurtado, Brett Davis

UCLA Mathematics Project

Lawndale, CA

Room 311

E, MS, HS, PS, Community

Teachers often want to engage parents but rarely are given tools to meet this goal. The ways schools traditionally engage parents are divorced from the mathematics content of our classes. True engagement goes beyond back to school nights and contacting parents solely for discipline purposes.

How might we utilize parents' willingness to help enhance their child's success? How can we use the unifying language of mathematics to support parents in helping their students?

In this session, we share some concrete, tested ways to include and engage parents in mathematics classes and provide a space for participants to share and develop ideas for authentic family engagement.

Bringing English Learners into the Math Discussion

Leslie Banes, Rachel Restani

UC Davis

Sacramento, CA

Room 218

E, MS

How do we ensure equitable participation for English learners in mathematics? This workshop explores ways to support ELs in joining the class discussion and expressing their mathematical thinking. Participants will increase their knowledge of the research on learning math in a second language and gain insight from interviews with bilingual students. Participants will work in grade-level groups (K-8) to identify the linguistic demands of a lesson on fractions and discuss ways to support ELs in "talking mathematics." Participants will learn and share strategies to take back to the classroom.

Workshop Session 2 (cont'd)

Special Education: Mathematics, social justice, and students with special needs

Theodore Chao, Jessica Hunt, Lauren Schiller

Harvard University

Cambridge, MA

Room 328A

E, MS, HS, PS, Community, PF, GS

A gathering designed for special educators and those interested in special education. In this discussion, we discuss ways to implement mathematics lessons and projects using social justice in various classroom situations for students with special needs. We explore different school environments, such as inclusion, resource rooms, and life skills, which students with special needs work in as they learn mathematics. Finally, we discuss the deeper political/critical issues involved with students with special needs and mathematics content, such as the racial and socioeconomic disparities within our special education population, the preparation and support of special education teachers, and current policies such as response to intervention.

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Workshop Session 2 (cont'd)

Henry's Freedom Box: A Journey Within and Outside of the Box of Social Justice Mathematics

Diana Erchick, Cynthia Tyson, Phyllis Gorman

Ohio State University at Newark

Columbus, OH

Room 209

E, MS, PF

In this session K-8 participants will experience and further explore grade level appropriate mathematics and pedagogy for a lesson and using Henry's Freedom Box: A True Story from the Underground Railroad, by Ellen Levine and Kadir Nelson. The story is a fictionalized account of Henry "Box" Brown's escape to freedom by shipping himself in a wooden crate from Richmond to Philadelphia. Size and scale issues regarding the crate, time in transit, and other factors provide the frame for a problem-solving task regarding the box. Participants will be in the roles of both learner and teacher in this workshop session.

Justice for All: Exploring Social Justice Possibilities in the College Algebra, Pre-Calculus and Statistics Classrooms

Patrice Parker, Kori Maxwell, Morgin Jones Williams, Jason Hunter

Georgia State University

Atlanta, GA

Room 224

PS, Community, PF, UG, GS

This workshop will address the utilization of social justice lesson plans in undergraduate mathematics classrooms. More specifically, this workshop will explore and build on the importance and use of social justice in college algebra, pre-calculus and statistics. Participants will not only experience an interactive and practical demonstration of social justice in action, but three lesson plans will be provided that can be incorporated in their own classrooms. A collaborative environment will also be fostered where ideas can be shared and concerns can be addressed, which will aid in building the community and propelling the social justice for mathematics movement forward

Workshop Session 2 (cont'd)

Mathematics and Social Change Simple Mathematics Examples that Inspire, Motivate, and Empower

Aris Winger

Georgia Gwinnett College

Lawrenceville, GA

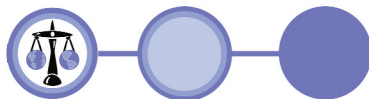
Room 306

E, MS, HS, Youth, PS, Community, PF, UG, GS

This workshop focuses on a number of real world situations where mathematics plays a tremendous role. These examples are rooted in events that are cultural, and social in nature while being easily understood. Such examples include:

- I. Why Barack Obama won (again) and would win again if he could run- Power and Elections .
- II. Why Racial profiling doesn't work- Why Bayes' Theorem is easier than we think.
- III. Why Income inequality is deeply tied to innumeracy and how to overcome it.

After the examples are presented, we discuss potential new ones, and how to move forward actively and aggressively.



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Workshop Session 3

Powerful Numbers in a Social Justice Algebra Classroom: catalyzing critical thinking, rigorous mathematical learning, and student voice

Alice Cook Henke

University of Maryland

Justin Robinson, Tyler Rogers, Clara Lincoln

Capital City Public Charter School

Room 222

MS, HS, Youth, PS, Community, UG

In the Powerful Numbers Expedition, a four-month Algebra 2 unit, students learned the power of functions and data through analysis of the HIV/AIDS crisis in Washington, D.C. Student learning was mathematically rigorous, based on Common Core Standards, and aligned to the Expeditionary Learning Model. In this workshop, co-presenters Alice Cook Henke and Seniors from Capital City Public Charter School will engage participants in activities from the unit, examine student work and artifacts, and discuss the ways that this project used student voice, community, and social justice to create a more equitable, engaging, and high-standards mathematics learning environment.

Mathematizing social justice: bringing community, school, and university events into the mathematics classroom

Ksenija Simic-Muller

Pacific Lutheran University, Tacoma, WA

Room 311

MS, HS, PF, GS, Youth

We discuss two projects assigned in a course for preservice teachers. Students attended a symposium about water and the Tunnel of Oppression, and reflected on the presence of mathematics in both events. Then they wrote mathematics lessons about water scarcity, and used mathematics to argue about a context featured in the Tunnel. In the workshop, we will look at student work, work on some of the lessons, and discuss ways in which community, school, or university events can be connected to the mathematics curriculum. Though the projects were used in a university classroom, they can be modified for other settings.

Workshop Session 3 (cont'd)

Walking in another's shoes: two middle-school math projects that examine social inequalities

Liz Caffrey

Live Oak School

San Francisco, CA

Room 218

MS, HS

I will show two projects that demonstrate how issues such as race, gender and socio-economic status can be examined through a mathematical lens. In one project, students use census data for income levels based on race, gender, and education level. They must create a budget for a person living in San Francisco with that income (including doing their taxes!). In the second project, students examine voting rights by being assigned a specific demographic in the US and examining how the presidential election would turn out if only their demographic voted. Both projects are designed for middle school students (but could easily be extended to high school) and involve heavy use of technology.

Liberating Math Education for Elementary Girls

Nini Hayes

UMass Amherst

Holyoke, MA

Room 209

E, MS, HS, Youth, PS, Community, PF, UG, GS

This interactive session will help math educators working with elementary girls to empower their students with their own mathematical agency by clueing them into the power of a fixed vs. malleable belief of one's intelligence based on the work of Dr. Carol Dweck, the power of self-talk, recognizing and unpacking ways girls are socialized to internalize math inferiority and helping to create a math bill of rights and responsibilities.

Participants will experience working in various formats to experience and discuss ways to highlight and sustain the mathematical agency of their female students using example activities and forms of media engaging for students.

Workshop Session 3 (cont'd)

The Two Faces of “Smartness”: Liberation and Exclusion in the Mathematics Classroom

Nicole Louie, Evra Baldinger

University of California Berkeley

Berkeley, CA

Room 328A

E, MS, HS, Youth, PS, Community, PF, UG, GS

In this workshop, participants will consider two faces of smartness - as liberatory and oppressive - in contemporary American discourse. Together, we will examine and experience scenarios in which the label “smart” reproduces hierarchies, as well as scenarios in which “smart” is used to equalize status and highlight the contributions every learner can make to collective learning and problem solving. We will work to re-imagine smartness in math classrooms and generate strategies that educators can use to break down exclusive aspects of “smartness” so that all students have access to rich mathematical learning and to visions of themselves and those around them as “smart.”

Creating Real(world) Opportunities in Urban Classrooms

AJ Stachelek, Sarah Lewis, Soledad Fernandez, Phiola Mcfarlane

Centering the Teaching of Mathematics on Urban Youth (CTMUY)

Brooklyn, NY

Room 224

HS

This session is presented by high school teachers from the Centering the Teaching of Mathematics on Urban Youth (CTMUY) group in NYC. Our collaborative professional learning team explores improving teaching practices, specifically in urban schools. This session will focus on two related goals: how we 1) become more familiar with the lived experiences of our students and 2) incorporate high-level mathematical tasks in our lessons. The session will create a collaborative structure for participants to these goals and how they are related. We will also share sample lesson activities for students.

Workshop Session 3 (cont'd)

Supporting Gender Diversity among Youth through Teaching Mathematics for Social Justice

Kat Rands

Elon University, NC

Room 325

MS, PF, pre-service teachers

This workshop involves interactive discussion of a yet-to-be-implemented plan for a middle grades mathematics project in which students engage with the data from the 2007 and 2009 National School Climate Survey of the Gay, Lesbian, and Straight Education Network (GLSEN) to examine how often the participants reported that a student intervened when another student made negative remarks about someone's gender expression. Through exploring this data, students learn about proportional reasoning and statistical concepts. Students then develop their own school survey and formulate an action plan for increasing the frequency of student interventions in response to negative remarks.

Murder by numbers - A critical analysis of the murder rate in Oakland using proportional reasoning as an investigative lens for social justice issues

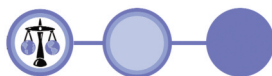
Tim Weekes

Lighthouse Community Charter School, Oakland, CA

Room 306

HS, Youth, PS, Community, PF, UG, GS, School Administrators

This workshop will demonstrate a how a social justice approach to presenting mathematics can lead to deeper classroom engagement and increased conceptual understanding. We will investigate the murder rate in Oakland by using proportional reasoning to compare it to other regions in the U.S while comparing the socio-economic data for those areas to create a lens for the students to make a critical analysis of the situation. We will also review data from a preliminary study I did which investigated the mathematical problem-solving skills African-American teenage males.



Workshop Session 4

Mathematics Serving the Community: Empowering Community Organizations with Youth Research

Brad Kohl, Nicholas Thyr, Eden Motto, Daniel Bergerson

Breck School

Minneapolis, MN

Room 311

HS, Youth, Community, PF, UG, GS

Can math and service learning go together? Mathematics Research empowers promising high school mathematics students, passionate for community service, to use their math skills on behalf of nonprofit clients in their areas of interest. These pro bono mathematicians volunteer with their organizations, then take on an initiative where they use statistical and analytical skills to create resources and make recommendations, giving organizations the credibility and power of mathematics. Student researchers will share their experiences and lead participants through activities and assessments they have created. Participants will work with student leaders to explore ways to create community-based research opportunities for students.

Math for Everyone: Promoting Equity for Students with Disabilities

Lauren Schiller

Harvard University

Brookline, MA

Room 328A

E, MS, HS, Youth, PS, Community, PF, UG, GS

There exists a pervasive view in our society that math is inaccessible to some; people either possess mathematical ability or they don't. As such, middle school students with disabilities become so jaded that they realize it is absolutely acceptable to admit, "I can't do math." This workshop will focus on debunking this pervasive societal view by focusing on ways to make math accessible and enjoyable for all. Areas that will be covered include encouraging a mathematical growth mindset through lessons about the brain, designing thematic units that connect mathematical ideas to the world, and utilizing games to promote confidence.

Workshop Session 4 (cont'd)

Thanks to the 2012 Election, Statistics is Cool (again)!

Eleanor Terry

High School of Telecommunication Arts and Technology

Brooklyn, NY

Room 222

MS, HS, Community, PF

This summer, Eleanor Terry received a Fund for Teachers Grant this summer to work alongside presidential campaign statisticians in the predominately Hispanic swing states of Florida, New Mexico, Nevada, and Colorado. Eleanor is committed to her students becoming statistically literate and, alongside her 33 AP Statistics students, conducted Exit Polls on November 6th at polling sites across Kings County- giving her classroom enough data to last the whole year. This workshop will focus on developing experiential learning through Statistics- where students create their own measurement tools, design their own studies, and write their own conclusions. Visit www.hstatistics.blogspot.com for more information.

Multiplication isn't Just for White People: Strategies to Engage Boys of Color in Mathematics

Terra Holman

George Jackson Academy

New York, NY

Room 218

E, MS, HS, PS, Community, PF, UG, GS

This presentation will explore the statistics regarding the mathematics achievement of boys of color (predominately Hispanic and African American boys). Participants will discuss the inherent traits in boys of color that allow them to have success in mathematics and share lessons, projects, and strategies proven to be successful in promoting their achievement.

Workshop Session 4 (cont'd)

Math for Social Justice in the Real World

Indigo Esmonde, Dominique Riviere, Joe Curnow

University of Toronto

Toronto, Canada

Room 209

E, MS, HS, Youth, PS, Community, PF, UG, GS

This workshop will focus on activism in the ‘real world,’ and consider implications for schools and communities. The workshop will use the example of a Toronto-based group Stop the Cuts (StC) to examine one case study of how mathematics was done as a part of community activism. Our goal is to use the case study to support a broader discussion of the links between mathematics teaching/learning and community activism. We will discuss ways to strengthen the activist content of schools, and the mathematics content of activist efforts. Teachers, researchers, community organizations, youth and parents are all welcome to attend.

Preparing Teachers to Address Social Justice Issues in the Elementary Math Classroom: Two Perspectives

Joan Kwako, University of Minnesota Duluth, MN

James Clayton, Jersey City, NJ

Room 224

E, Youth, PS, Community, PF, UG, GS

Pre-service teachers in two very diverse geographic and socio-economic settings who are enrolled in elementary mathematics methods courses were challenged to prepare lessons that address issues of social justice. The students at the two institutions shared their lesson plans with each other and provided feedback to each other based on their personal experience in terms of what constitutes a solid social justice lesson. In one case, the students had a significant amount of time schools; in the other, the time was limited. Also, in one case, the students were very homogeneous; in the other, the students were quite diverse. The facilitators will discuss the results of their long distance collaboration.

Workshop Session 4 (cont'd)

THE FACES OF MATH TALKS - Examining perspectives of mathematical discussions

Rachel Restani, Leslie Banes

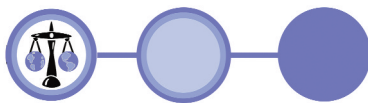
UC Davis

Davis, CA

Room 325

E, MS, HS, Youth, PS, Community, PF, UG, GS

The use of discourse in math classrooms is strongly emphasized in the national reform documents as well as the common core standards that are beginning to be implemented. Because each student is unique, these discussions will also be unique from classroom to classroom. Learn how teachers are currently intertwining the ideas of mathematical discussion and identity. Communicate with other teachers and parents about how to encourage students to talk about math, inside and outside of the classroom. Read researcher's perspectives on how mathematics should be discussed. Develop a collaborative understanding of how students perceive math in relation to themselves.



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Saturday, January 19th

Workshop Session 1 (10:00-11:20 AM)

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|---|--|---|---|
| Students Becoming Socially Conscious Mathematicians | Creating a Schoolwide Culture of Math: starting with the adults! | Developing Computational Fluency with all Elementary School Math Students: An Issue of Rigor and Equity in the Schools Rather than Inequity outside of School | Stereotypes + kids = inequity... and what you can do about it |
| Room 222 | Room 311 | Room 209 | Room 328A |
| Developing as Social Justice Math Educators in the Neoliberal Era | Developing Children's Mathematical Agency -- to Write the World with Mathematics | What is Fair & Equitable Instruction?: Teaching Critical Thinking versus Teaching to the High-Stakes Test | |
| Room 224 | Room 325 | Room 306 | |

Workshop Session 2 (12:30-1:50 PM)

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|---|--|---|---|
| Who gets pulled over?: Mathematics as a tool for exploring the (dis)proportionality of police traffic stop data | Henry's Freedom Box: A Journey Within and Outside of the Box of Social Justice Mathematics | 'I feel so included. For once.' Engaging and involving parents in a non-deficit way to affect change.non-deficit way to affect change | Mathematics and Social Change Simple Mathematics Examples that Inspire, Motivate, and Empower |
| Room 222 | Room 209 | Room 311 | Room 306 |
| Bringing English Learners into the Math Discussion | Flagway Games | Justice for All: Exploring Social Justice Possibilities in the College Algebra, Pre-Calculus and Statistics Classrooms | Special Education: Mathematics, social justice, and students with special needs |
| Room 218 | Gymnasium | Room 224 | Room 328A |

| Workshop Session 3 (2:00-3:20pm) | | | |
|---|--|---|---|
| Creating Real(world) Opportunities in Urban Classrooms | Walking in another's shoes: two middle-school math projects that examine social inequalities | Powerful Numbers in a Social Justice Algebra Classroom: catalyzing critical thinking, rigorous mathematical learning, and student voice | The Two Faces of "Smartness": Liberation and Exclusion in the Mathematics Classroom |
| Room 224 | Room 218 | Room 222 | Room 328A |
| Supporting Gender Diversity among Youth through Teaching Mathematics for Social Justice | Mathematizing social justice: bringing community, school, and university events into the mathematics classroom | Murder by numbers - A critical analysis of the murder rate in Oakland using proportional reasoning as an investigative lens for social justice issues | Liberating Math Education for Elementary Girls |
| Room 325 | Room 311 | Room 306 | Room 209 |

| Sunday, January 20th | | | |
|--|---|--|---|
| Workshop Session 4 (10:00-11:20am) | | | |
| Thanks to the 2012 Election, Statistics is Cool (again)! | Math for Everyone: Promoting Equity for Students with Disabilities | Preparing Teachers to Address Social Justice Issues in the Elementary Math Classroom: Two Perspectives | Math for Social Justice in the Real World |
| Room 222 | Room 328A | Room 224 | Room 209 |
| THE FACES OF MATH TALKS - Examining perspectives of mathematical discussions | Mathematics Serving the Community: Empowering Community Organizations with Youth Research | Multiplication isn't Just for White People: Strategies to Engage Boys of Color in Mathematics | |
| Room 325 | Room 311 | Room 218 | |