

# Middle Grades Math

Why Algebra Matters & How Technology Can Help

Stanford University



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# OVERVIEW

Learn how promising digital tools and resources are now available to help you strengthen teaching and learning in middle grades math and the policy changes that California must make to take advantage of these new opportunities. Policy leaders and experts in education technology will share and discuss what's becoming possible with the proliferation of digital technologies in California schools.

This conference is hosted by Silicon Valley Education Foundation, Policy Analysis for California Education and NewSchools Venture Fund. We thank our sponsor S.D. Bechtel, Jr. Foundation for making this conference possible. **Tweet your comments about the forum on Twitter using the hashtag #Algebramatters.**



## Policy Analysis for California Education



Policy Analysis for California Education (PACE) is a partnership between Stanford University, UC Berkeley and the University of Southern California since 1983. We work to bridge the gap between academic researchers and policy-makers by publishing policy briefs and working papers on current issues, convening seminars and briefings, and organizing conferences. Recent work has focused on three policy challenges facing California: 1) implementing the Common Core State Standards; 2)

smoothing the transition from secondary to post-secondary education; and 3) experimenting with new approaches to teacher evaluation. David Plank is Executive Director of PACE and Research Professor of Education at Stanford University. Learn more about PACE at [www.edpolicyinca.org](http://www.edpolicyinca.org).

## Silicon Valley Education Foundation



Silicon Valley Education Foundation is a non-profit resource and advocate for students, educators, and corporate and individual donors. We drive scholastic achievement in the critical areas of math and science by combining resources and partnerships to provide innovative academic programs.

We are a catalyst for policy solutions in public education. Our mission is to make Silicon Valley the leader in academically prepared students. Muhammed Chaudhry serves as President & CEO for the Silicon Valley Education Foundation (SVEF). Under his leadership, SVEF has become the leading education foundation serving Silicon Valley to support students, teachers and the community. Learn more at [www.sveffoundation.org](http://www.sveffoundation.org).

## NewSchools Venture Fund



NewSchools Venture Fund is a not-for-profit organization that funds and supports education entrepreneurs making a difference in the lives of students from low-income communities. Since our founding in 1998, NewSchools has invested \$180 million in more than 70 nonprofit and for-profit organizations working to promote student achievement. Recognizing that neither private charity nor capital markets alone are enough to solve the problem of education inequality, we blend the best of both approaches to ensure an excellent education is available to every child. Dr. Ted Mitchell is President & CEO of the NewSchools Venture Fund, a philanthropy organization committed to improving public education, especially for the underserved. Learn more at [www.newschools.org](http://www.newschools.org).

# AGENDA

## Network Access

User ID: MiddleGradesMath+326

Password: PACE\_SVEF\_@2

### 8:30am REGISTRATION AND BREAKFAST

9:00am Welcome – Muhammed Chaudhry, President & CEO, Silicon Valley Education Foundation

9:05am Overview – David Plank, Executive Director, Policy Analysis for California Education

9:15am Keynote Address – Dr. Ted Mitchell, President & CEO, NewSchools Venture Fund

9:45am Math Panel

- Dr. Charles Weis, Superintendent, Santa Clara County Office of Education (Moderator)
- Phil Daro, Senior Fellow, Mathematics of America's Choice and Co-Director of Tools for Change, University of California at Berkeley
- Dr. Neal Finkelstein, Senior Research Scientist, WestEd
- Dan Meyer, Math Teacher, Apple Distinguished Educator

10:30am Access/Equity Panel

- Dr. Tony Monreal, Porterville Unified School District (Moderator)
- Manny Barbara, Silicon Valley Education Foundation
- Courtney Cadwell, Teacher, Los Altos School District
- John Danner, Rocketship Education
- Dr. Matt Rosin, EdSource

11:15am Keynote Address – Tarkan Maner, President & CEO, Wyse Technology

### 11:45am LUNCH

12:15pm Presentations of Digital Tools

- Mike Cassidy, Columnist, San Jose Mercury News (Moderator)
  - Agile Mind
  - ALEKS
  - CFY
  - CK-12 Foundation
  - Edmodo
  - Key Curriculum Press
  - Mathalicious
  - Motion Math
  - Monterey Institute for Technology and Education (MITE)
  - World Wide Workshop

1:30pm Keynote Address – Dr. Jeremy Roschelle, Director of the Center for Technology in Learning, SRI International

2:00pm Policy Panel

- Dr. Caprice Young, President & CEO, EnCorps (Moderator)
- Dr. Michael Kirst, President, California State Board of Education
- Dr. Rick Miller, Superintendent, Riverside Unified School District
- Pat Sabo, Teacher and California Teachers Association State Council Member

2:45pm Wrap Up – Muhammed Chaudhry and David Plank

### 3:00pm MATH RESOURCES EXPO/INTERACTION WITH PRESENTERS

5:00pm End of Conference

**Explore the latest learning solutions at the Math Resources Expo  
and meet with the Digital Tools Presenters.**

**3:00pm-5:00pm**

# KEYNOTE SPEAKERS

## Dr. Ted Mitchell, NewSchools Venture Fund



Dr. Mitchell is President and CEO of the NewSchools Venture Fund, a venture philanthropy organization committed to improving public education, especially for the underserved. He has long been a leader in education reform in California and nationally. From 2008 through 2010, he served as president of the California State Board of Education.

Prior to taking the helm at NewSchools in 2005, Ted was

president of Occidental College, vice chancellor and dean of the School of Education and Information Studies at UCLA, and professor and chair of the Department of Education at Dartmouth College. He has served on a number of policy commissions, including chairing the Governor's Committee on Education Excellence and the Commission on Teacher Effectiveness for the Los Angeles Unified School District. In addition, he serves on the board of directors of Khan Academy, New Leaders for New Schools, The Teaching Channel, ConnectEd: The California Center for College and Career and The McClatchy Company. Dr. Mitchell received his B.A., M.A., and Ph.D.

## Tarkan Maner, Wyse Technology



Mr. Maner is President and CEO of Wyse Technology, the global leader in cloud client computing. He is one of the leading IT visionaries evangelizing the economic, social and technology benefits of social media, IT mobility and cloud computing. His leadership in technology innovation, customer and partner intimacy/advocacy and

operational excellence has been crucial to the company's growth, profitability and industry leadership. Mr. Maner

joined Wyse in 2005 as chief marketing officer and served as president of worldwide field operations. Previously, he led marketing, product management, business development and strategic alliance initiatives at Computer Associates and IBM. Mr. Maner received a bachelor's degree in engineering management from Istanbul Technical University in Turkey, earned an MBA from Midwestern State University and participated in the AMP program at Harvard Business School. He serves on the board of several innovative IT startups, Silicon Valley Leadership Group and TechAmerica Foundation's State and Local Government Cloud Commission.

## Dr. Jeremy Roschelle, SRI International



Dr. Roschelle is the Director of the Center for Technology in Learning at SRI International. His research examines the design and classroom use of innovations that enhance learning of complex and conceptually difficult ideas in mathematics and science. Through cognitive science-based research on the "Envisioning Machine" and later "SimCalc," he has

explored how technology-based representations can make fundamental ideas in Algebra and Physics accessible to

more students. Two running themes in his work are the study of collaboration in learning and the appropriate use of advanced or emerging technologies (such as component software and wireless handhelds) in education. More recently, Dr. Roschelle has been addressing large-scale use of innovative technologies in education, both through consulting to companies with a large impact in the market such as Texas Instruments, Pearson and Scholastic, and through implementation research on scaling up SimCalc to a wide variety of teachers and classrooms. His research includes one of the few large scale randomized experiments to find evidence for the effectiveness of technology in middle school mathematics education.

# DIGITAL MATH TOOLS

## Mike Cassidy - Moderator

*Mike Cassidy is a columnist at the San Jose Mercury News. His column looks at the entrepreneurship, diversity and risk-taking that make the valley a place like few others in the world. He has regularly written about the intersection of technology and education.*

**Agile Mind** - Agile Mind uses technology to help transform engagement, achievement and persistence in mathematics among adolescent learners and to build teacher effectiveness and satisfaction, by integrating professional development, curriculum, formative assessment, test prep, assignments, and data analytics and reporting into one cohesive online system.



[www.agilemind.com](http://www.agilemind.com)

**ALEKS** - ALEKS is a web-based mathematics program that provides personalized assessment and learning for grades 3-12. Using artificial intelligence and adaptive questioning, ALEKS assesses a student's knowledge and delivers instruction on the exact topics the student is most ready to learn.

[www.aleks.com](http://www.aleks.com)

**CFY** - As a national nonprofit, CFY helps low-income students, together with their teachers and families, harness the power of digital learning to improve educational outcomes. CFY pursues this mission through the combination of its K-12 learning platform, PowerMyLearning.com, and its direct service initiative, the CFY Digital Learning Program. <http://cfy.org>



**CK-12 Foundation** - As a non-profit organization, the CK-12 Foundation's mission is to produce free and open source K-12 materials aligned to state curriculum standards and customized to



meet student and teacher needs. Current offerings include FlexBooks® digital textbooks, an SAT prep site, and an interactive Algebra I curriculum. [www.ck12.org](http://www.ck12.org)

**Edmodo** - Offered as a free and secure social learning network for teachers, students and



schools, Edmodo provides classrooms a safe and easy way to connect and collaborate, offering a real-time platform to exchange ideas, share content and access home-work, grades and school notices. [www.edmodo.com](http://www.edmodo.com)

**Key Curriculum Press** - Key Curriculum Press strives to engage students with effective mathematics software and curriculum, support teachers with high quality professional development and advocate for excellence and equity in education. The dynamic environments of Sketchpad and TinkerPlots enable students to visualize and explore mathematical relationships and data. [www.keypress.com](http://www.keypress.com)



**Mathalicious** - Mathalicious provides teachers with materials that allow them to teach math using real-world topics. Lessons are aligned to Common Core standards and explore everything from the NBA to the iPad to the odds of finding life on other planets. [www.mathalicious.com](http://www.mathalicious.com)



**Monterey Institute for Technology and Education** - As a non-profit organization, the Monterey Institute for Technology and Education is committed to improving access to education



through research, collaborative development and online distribution of media-rich, curricular digital resources. MITE's cornerstone projects are



the National Repository of Online Courses, HippoCampus.org and Algebra 1—An Open Course. [www.nrocmath.org](http://www.nrocmath.org)

**Motion Math** - Motion Math creates fun learning games that let kids play with numbers. We turn screen time into learning time. We're creating mobile math game suites that are rigorously educational, stylish and awesomely fun. Our latest application is Motion Math: Hungry Fish. [www.motionmathgames.com](http://www.motionmathgames.com)



**World Wide Workshop** - World Wide Workshop develops applications for learning with technology that



combine game mechanics and social networking to empower youth to be inventors and leaders in the global knowledge economy. Globaloria is a rigorous turn-key instructional solution for STEM learning, teaching students how to create educational webgames and interactive simulations. Our programs transform education by connecting youth to learning, community engagement and economic development through game production. [www.worldwideworkshop.org](http://www.worldwideworkshop.org)

# PANEL DISCUSSIONS

## MATH PANEL



This panel considers the mathematics that students must learn in the middle grades. The basic mathematics involved in Algebra I mark a critical transition from concrete to abstract thinking, and define the gateway to success in high school mathematics and STEM courses. Failing Algebra I is a key step toward dropping out. Panelists will focus on three issues: the lack of coherence in California's current math curriculum as experienced by students, the essential mathematical knowledge and skills that middle school students need to master, and the ways in which the use of digital tools and resources can improve teaching and learning in math.

### **Phil Daro**

Phil is a Senior Fellow for Mathematics for America's Choice where he focuses on programs for students who are behind in mathematics. He directs the Strategic Education Research Partnership between the University of California and Stanford with the San Francisco Unified School District to focus on math and science learning among students learning English. Phil chaired the Common Core Standards Mathematics Workgroup that is drafting common College and Career Readiness Standards and was a member of the writing team for the K-12 Common Core State Standards.

### **Dr. Neal Finkelstein**

Dr. Finkelstein is an education researcher at WestEd who designs

and implements rigorous field-based program evaluations and impact studies. His current research areas and interests include: high school completion patterns and the transition to postsecondary education, middle school mathematics teaching and learning, diagnostic uses of school-based data systems, school governance systems and educational productivity. Prior to joining WestEd, Dr. Finkelstein served as Director of Educational Outreach Research and Evaluation for the University of California Office of the President.

### **Dan Meyer**

Dan taught high school math for six years to students who did not like math. He is currently a doctoral candidate at Stanford University in

mathematics education. He speaks internationally and consults with publishers on their digital curricula. He was named one of Tech & Learning's 30 Leaders of the Future and is an Apple Distinguished Educator.

### **Dr. Charles Weis (Moderator)**

Dr. Weis has served as Superintendent of Santa Clara County Schools since July 2008. Previously, he held a similar position in Ventura County. He holds several degrees from California's state universities, including a doctorate in Educational Policy and Organizational Studies from UC Santa Barbara. He is a past president of the Association of California School Administrators (ACSA), with which he's been associated since 1980.

## ACCESS/EQUITY PANEL



This panel focuses on the issues of access and equity as they pertain to algebra and the use of technology. We begin by asking who is taking and succeeding in eighth grade algebra. State and county data show that students of color are achieving at significantly lower rates in this critical gateway class. The panel then asks how we can ensure that the proliferation of digital tools and resources will help close rather than widen the achievement gap in mathematics. As technology increasingly emerges as a "disruptive force" in education, do all students have access to new technologies that may improve student learning?

# PANEL DISCUSSIONS

## **Manny Barbara**

Manny is Vice President of Advocacy and Thought Leadership at Silicon Valley Education Foundation. Previously, he served for ten years as Superintendent of the Oak Grove School District. Manny has an M.S. in Applied Psychology from San Jose State University and is currently an Adjunct Professor of Educational Leadership at that university.

## **Courtney Cadwell**

Over the past 17 years in education, Courtney has worked as a classroom teacher, curriculum writer, teaching mentor and currently serves as a Math Coach at the Los Altos School District.

Courtney earned degrees from the University of Texas, Dallas Theological Seminary and Vanderbilt University.

## **John Danner**

John is the CEO/co-founder of Rocketship Education, the leading public school system for low-income elementary students. John's prior experience includes Chairman of the Charter School Resource Center in TN, founding director of KIPP Academy Nashville, co-founder of San Jose's Sacred Heart Nativity School and co-founder/CEO NetGravity.

## **Dr. Tony Monreal (Moderator)**

Tony serves as an Assistant Superintendent for the Porterville

Unified School District. Previously, he was the Deputy Superintendent for the CA Department of Education under Jack O'Connell. Throughout his career as an educator, Tony has served as a counselor, teacher, assistant principal, principal and superintendent for various districts in the public, private and charter environments.

## **Dr. Matt Rosin**

As Senior Research Associate at EdSource, much of Matt's recent work has focused on the middle grades through community college, with regular attention to mathematics. Matt holds a Ph.D. in Education from Stanford University.

## POLICY PANEL



The increasing availability of digital tools and resources to support teaching and learning presents both opportunities and challenges for California's education system. This situation raises big questions about how the system should be organized and funded to ensure that teachers and students can take full advantage of these new possibilities. A panel of policy leaders will discuss these questions, with a focus on the policy changes that will be required to support innovation, experimentation and effective use of new technologies in California's schools.

## **Dr. Michael Kirst**

Dr. Kirst is Professor Emeritus of Education and Business Administration at Stanford University. He received his Ph.D. in political economy and government from Harvard. Before joining Stanford in 1969, Dr. Kirst was the Staff Director of the U.S. Senate Subcommittee on Manpower, Employment and Poverty, and Director of Program Planning for the Elementary and Secondary Education of the U.S. Office of Education. He is president of the California State Board of Education.

## **Dr. Rick Miller**

Dr. Miller is the Superintendent of the Riverside Unified School District and has been an educator for over 40

years. In addition to serving as superintendent for 23 years, he also teaches as an adjunct instructor at the university level. Dr. Miller has been a teacher and principal at the elementary and secondary levels. His career focus has been on school reform and improved student achievement in diverse settings. Dr. Miller co-founded a collaborative assistance program, building more collaborative structures within our school organizations.

## **Pat Sabo**

Pat is an eighth grade algebra teacher and Math Department Chair at Healdsburg Junior High School. She has been teaching for 34 years and is a member of the CTA Teacher

Evaluation work group. She is also a delegate of the NEA Representative and has served on the Committee for Adoption of the National Common Core Standards. Pat is listed as a member of the "Who's Who Among America's Teachers."

## **Dr. Caprice Young (Moderator)**

Dr. Young served as President & CEO of Encorps before recently joining the Laura and John Arnold Foundation as Vice President of Education to expand the Foundation's educational strategy. She was the founding President & CEO of California Charter Schools Association and also previously served as Assistant Deputy Mayor in the City of Los Angeles.

We gratefully acknowledge the support of  
S.D. Bechtel, Jr. Foundation.



## Hosting Organizations

