AZ Noyce MaTh Scholars Program

Noyce Seminar
#UAteachmath
March 3, 2017
Agenda

Noyce Seminar 3.3.2017

- Sign-In & Refreshments
- Announcements
- Western Regional Noyce Conference Scholar Presentations
- Guest Speaker: Melissa Hosten
- Expectations for Noyce Seminar #3
Announcements

- **Friday April 21, 2017 @ 3:30pm**
  - Noyce Seminar #3
  - Noyce Scholars & Interns Reflection Presentations
  - Focus Groups led by Dr. Michelle Higgins

- **Monday April 24, 2017 @ 6:30pm**
  - Bartlett Lecture: “How to use math to get rich in the lottery”
  - Presenter: Jordan Ellenberg, University of Wisconsin-Madison
  - UA Campus: Gallagher Theater

- **Thursday April 27, 2017 @ 4pm (“Noyce Seminar #4”)**
  - Mathematics Department Colloquium
  - Presenter: Rosalie Belanger-Rioux, Harvard University
  - Topic: Equity & Diversity
  - MATH 501
Western Regional Noyce Conference

February 17-19, 2017
Double Tree Hotel
2233 Ventura Street, Fresno, Ca 93721

Sponsored by the CSU, Fresno
The conference focused on the implementation of the Common Core Math and Next Generation Science Standards along with resources, technologies, and strategies designed to support teaching and learning in high needs schools.

Guests:
Noyce Scholars, Fellows, Teachers and Noyce PIs/Personnel from the Western Region of the United States - Arizona, California, Colorado, Hawaii, Idaho, Montana, New Mexico, Oregon, Texas, Utah, and Washington.
Western Regional Noyce Conference Experience
by Gerardo Lopez
What are other Scholars doing?

- Noyce Program
- Noyce Boot Camp
- University Program
- Blocks
- TEXES
New Strategy to Engage Students

- The goal is to solve none traditional mathematical problems to increase interest from students.
- The Hook, Cut a star with one cut.
- Start with other shapes (easy)
- Students will want to figure out the star but, lets do the work first
Social-Emotional Competence (SEC) and Teachers

- What is SEC?
- Who has high SEC?
- Who has low SEC?
- What is the classroom impact of good SEC?

- Individuals with high SEC
- Individuals with low SEC
The Impact of this Conference

By: Jorge Stimans

- More open to different ways of teaching
- More open to other fields within STEM, and more aware of how these are related
- More aware of the scale of Noyce
- More aware of the goal of Noyce
Other Noyce Scholars

- Other scholars are doing very similar things to what we are doing
- However, Noyce goes beyond mathematics, and tries to help students in other fields
- We are luck we have such talented faculty and staff
I learned

- NOYCE scholars should be leaders in their schools, districts, and communities
- We need to work on opening up STEM for different groups of people
- There is a lot of opportunities for all of us to learn and teach
- Students should go through a “Hero’s Journey”
- We should minimize direct instruction
- We need to create “need to know” content
- Students need to be engaged
- Our classrooms need to be learning communities
WRNC: A Perspective

By: Marvin Portillo

- As a math teacher…
  - Empowered
  - Responsible
  - Duty
Activities

- Desmos (teacher.desmos.com)
- Error Analysis
- Odd One Out: 2, 4, 5, 10
Student Thinking and Learning

- Curiosity
- Be real
- Bring “you” into the classroom
What I learned about teaching Math

By: Stephanie Lane

- Never say anything a kid can say

- 5E lesson plan:
  - Engage → Explore → Explain → Elaborate → Evaluate

- Ask ‘How does this lesson foster students thinking that they are a competent math learner’

- Allow students to make revisions on any graded assignments. This helps with growth mindset, and also leaves the responsibility for the grade on the students.

- Never use a problem which can be solved without the method you are learning
What I learned about teaching Math (cont’d)

- When starting a unit, give the class one of the hardest problems which would normally be done at the end of the unit and ask them to figure out what they need to know in order to solve the problem. This will help create the need to know in students, as well as giving them some power and control.

- Students don’t need to be able to do each step perfectly to see the big picture (you don’t need to be able to sing C note from memory in order to sing twinkle twinkle little star, even though C is the first note)
What I learned about student thinking and learning

- Have the students create their own goals for improvement and come up with ways to reach them.

- People react to authenticity. Be real with students.

- Make sure that it shows through your actions that you care about where students come from and where they are:
  - Use to create lessons
  - Use to connect with students and/or help them find ways to reach goals

- Students will give a lot of insight if you just be honest about things and ask them.
What I learned about student thinking and learning (cont’d)

- When students get angry, it shows that they care. Tell them you see that they are committed. What they are doing is not ok, but you can sit down with them at a later time and talk with them about what you both can do.
Fun Activity!!!!

Cutting rings in half to form surprise shapes.
How this impacted me

- Learned a lot
  - Lesson Planning
  - Dealing with students
- Excitement
Guest Speaker: Melissa Hosten

Topic: Equity and Mathematics Education (gender, identity, ethnicity, affluence, and implicit biases)

- Melissa Hosten is the Co-Director for the UA Center for Recruitment and Retention of Mathematics Teachers.
- She has worked in education 20+ years
- She is Past President of Women and Mathematics Education and an Awardee of the Copper Apple Award for Leadership in Mathematics
- Her work focuses on reimagining mathematics instruction to improve access and equity for ALL students

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This activity was created by Dr. Julia Aguirre
University of Washington, Tacoma
Around the room:
What have you heard about working with these groups of students?

- Using post-it notes, write ONE statement on each note.
- You may place more than one note on a poster.
What themes bubble up?

In pairs or trios go to a poster and analyze

- Summarize your findings
- Let’s share
- These are the narratives for these groups of students.
Black Boys and Mathematics
(math methods week 2, Fall 2015)

- Pipe line to Prison
- Adult-ified
- Live in the “Ghetto”
- Low Expectations
- Don’t feel they need math, want to be successful at sports
- Lots of energy
- Low attention
- Families don’t support

- Not math people, not interested in math
- Poor math students
- Candidates for high drop out rates
- Held back
- Slow learners
- Not motivated/ambitious
- Low attention span
- Haven’t heard positive or negative things

DEFICIT-FRAMED DISCOURSE

Aguirre, J. 2016
Reframing is crucial

- How can we reframe deficit-framed narratives and discourse to strength-framed narratives and discourse?

Aguirre, J. 2016
Black Boys and Mathematics
(Strength/Resource-based Orientation)
Math Methods Week 10, Fall 2015

- High Expectations
- High Energy to learn
- Knowledgeable and mature
- College bound
- Loves math
- Scholar athletes
- Interested in Math

- Families Support
- Families Care
- Mathematical thinkers
- Care about learning
- Highly capable
- Leaders
- Motivated
- Successful Graduates

STRENGTH FRAMED DISCOURSE

Aguirre, J. 2016
Implicit bias: Invisible but Powerful

Critical friends structure: Find two people you will consider a resource beyond this workshop, and form a trio.

Consider each member as an expert in their idea and listen to learn. Look to engage. Ensure confidentiality beyond the task.

- What did you learn about yourself when taking the implicit bias assessments?

- What did you learn about women and mathematics in Why So Few?

- What did you discover about stereotype threat in the ScienceDirect reading?

Aguirre, J. 2016

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Teacher Actions

What can I do to change the narratives in my classroom?

- Identify your own bias, and actively overcome it.
- Err on the side of presuming positive intent whenever possible.
- Redirect energy in a positive way through leadership or helping role.
- Encourage postsecondary education.
- Each child enters classroom with a “clean slate”.
- Use student’s background knowledge and apply to their learning.
- Become a member of teacher organizations dedicated to Social Justice.
- See student as mature and Knowledgeable.
- Make math relatable and applicable.
- Have high expectations and scaffold to support success.
- Self reflect on own instructional practice.
- Provide additional opportunities to get academic and socioemotional support (before and after school, during lunch).
- Allow student exploration.
- Make mistakes a site for learning.

Aguirre, J. 2016

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Make your classroom a Brave Space for Social Justice


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Aguirre, J. 2016

Robert Noyce National Science Foundation Award #1557255
“A social justice stance requires a systemic approach that includes fair and equitable teaching practices, high expectations for all students, access to rich, rigorous, and relevant mathematics, and strong family/community relationships to promote positive mathematics learning and achievement. Equally important, a social justice stance interrogates and challenges the roles power, privilege and oppression play in the current unjust system of mathematics education and in society as a whole...This is the challenge and the work of social justice in mathematics education to do right by our children and move forward together.” TODOS, NCSM joint statement

Aguirre, J. 2016
Noyce Seminar #3

- Friday April 21, 2017
- ENR2 #395; 3:30pm-5:00pm
- Topic: Formal Presentations
- Reflections on Noyce program experiences
  - CRR Tutoring
  - UTA
  - Afterschool Program
  - SMEP Practicum Experiences

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Noyce Seminar #3

- **CRR Tutoring**
  - Erika Friedemann
  - Camille Hastings
  - Kristen Leyva

- **SMEP Practicums**
  - Gerardo Lopez
  - Marvin Portillo
  - Kelsey Timms

- **Afterschool**
  - Ariel Carr
  - Jessy Forelli
  - Rasesh Kansagra
  - Steph Lara

- **UTA**
  - Marley Murrell
  - Stephanie Lane
  - Quentin Nolf
  - Jorge Stimans

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Noyce Seminar #3

- Each group will have 10 minutes total to present.
- Each person must take a turn in presenting.
- Send out this powerpoint template no later than Friday March 31, 2017
- You may wish to work together through a shared google document.
- Group powerpoint presentation should be emailed to Dr. Eli (jeli@math.arizona.edu) no later than Thursday April 20, 2017 at 5pm (no exceptions!).
1. What have you learned about yourself as a future mathematics teacher?

2. What have you learned about mathematics teaching?

3. What have you learned about student thinking and learning?

4. What have you done really well? What would you like to improve upon?

5. What mathematics activities or tasks would you like to try out next semester?

6. What is one goal you would like to set for yourself towards becoming a better future mathematics teacher?

7. What set of actions will you take towards reaching this goal?

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