



CREATING CULTURAL RELEVANCE IN TEACHING AND LEARNING MATHEMATICS

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Context Matters



Michelle Gaudreau (2013). Context matters: Equity, relevance, and the future of mathematics education. In T. S. Ledford & L. West (Eds.), Proceedings of the 97th annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education (pp. 103-104). Montreal, Quebec.

**Principles to Actions
An Urgent Agenda for School Mathematics**


“knowing and understanding the social contexts, cultural backgrounds, and identities of the students as resources that can be used to help build on problem solving techniques, develop understanding of mathematics across contexts and conditions, help students apply and connect mathematics to examine the world, and to motivate students to learn more mathematics.”
(NCTM, 2013, p.18)



What is mathematics really?

Mathematics is a human activity, a social phenomenon, a set of method used to help illuminate the world, and it is part of our culture.

- Jo Boaler



Workshop outcomes


Participants will:

- * Engage in open-ended tasks and assessments that begin connecting classroom mathematics to students' out-of-school experiences.
- * Reflect upon one's instruction along the characteristics of culturally responsive mathematics instruction
- * Identify collectively resources and strategies to elicit and build upon our students' rich knowledge base
- * Develop a social network for continued resource and support

Personal number activity

Numbers and mathematics are a part of our daily lives. We see and use them every day as we decide on what to purchase or on the shortest route to a friend's house.

- * Think of a number that holds a special meaning. Write the number down on the index card.
- * Flip your card over and write down some mathematical characteristics about your number.

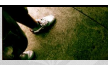


Personal number activity

Share: Find someone with the same color index card. Introduce yourself. Talk about the significance of your number. What do you notice? Similarities? Differences? Relationships shared?

* **Now,**
Get in a triad or a quad where there is a shared relationship among the numbers.

* **Get ready,**
With your group, meet with another group. What was the mathematical relationship for their group formation? Do you agree?
Can you think of another relationship for that group or yours?




Does the task build the Student's Mathematical Practices?

1. Make sense of problems and persevere in solving them
2. Reason abstractly and quantitatively
3. Construct viable arguments and critique the reasoning of others
4. Model with mathematics
5. Use appropriate tools strategically
6. Attend to precision
7. Look for and make use of structure
8. Look for and express regularity in repeated reasoning

Culture as a strength

A guiding principle behind much of this work is that teachers should view students' home cultures and languages as strengths upon which to build, rather than as deficits for which to compensate.”

• William Tate
• In "Race, Retrenchment, and the Reform of School Mathematics" (p. 31)



Culturally Responsive Instruction

- Belief in students' capability and learnability for rigorous mathematics
- Positive teacher-student interactions and relationships in a cooperative, collaborative and collective learning community
- Contextualizing teaching and learning by connecting what is taught to students' funds of knowledge (e.g. mathematical, linguistic, familial, community)
- Engagement in equitable and social justice practice using mathematics as a tool for analysis (reading and writing the world through mathematics)

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Discussion

How does the Personal Number Task address some of the characteristics of a culturally responsive mathematics instruction? Where does it fall short?

Challenges to this work

- How do I elicit students' out-of-school knowledge?
- How do I incorporate their out-of-school practices into instruction?
- What aspects of students' culture should I use?
- What is culturally relevant is based on our students and not us!



Class Camera Walk

(Leonard & Smita, 2002)

Task: On our community walk, think about the ways in which we use mathematics in our daily lives. Pay close attention to the informative or geometric aspects of people, signs, historical markers, and architecture. Take pictures to document your thinking.



Student pictures



Student invented problems



My church is located on Lincoln Avenue. It's 7 blocks away from my house. There are 4 light poles on each side of the street on every block. How many light poles am I going to pass before I get to my church?

Why would a student take a picture of a street fruit cart? What may s/he be thinking? Where is the mathematics?



Student invented problems



I have Oreo cookies to share with Nestor and Julia. How much do we each get?

Next Steps



• **Share:** Share some of the activities and resources you're using to elicit and build on your students' rich knowledge base.

• How can we continue supporting and sharing our work as a professional community?

• Google + Community

• Go to: <https://www.google.com/plus/community>