INCREASING AWARENESS OF CULTURE IN MATHEMATICS METHODS COURSES

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NCTM Research Presession - Salt Lake City 2008

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My Journey

- Native New Yorker
- Graduate Student at University of Maryland at College Park
- Faculty at University of Georgia

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- As of 2004, approximately 84.3% of the teacher work force was made up White teachers in public schools.

- At the elementary level, the majority of teachers are white females.

(NCES, 2004)

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- Why am I not reaching my students?
- Why aren't they learning from me?
- What's wrong with them??
- What does it means to be a White female in the South, who wants to be an elementary school teacher who teaches math too, and is learning from an African American female Yankee?

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What is culture?

A group's collective ways of thinking, believing and knowing, which includes their shared experiences, consciousness, skills, values, forms of expression, social institutions and behaviors.

Hillard (2001)

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"Most teacher education programs do not satisfactorily prepare their students to accept and affirm human diversity in race, class, sex, handicap, and age. Furthermore, prospective teachers usually have, at best, only a vague understanding about how social inequality is perpetuated through schools."

(Grant, 2001, p. 95)

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"Although teacher candidates were generally open to the idea of cultural diversity, they lacked confidence in their ability to do well in diverse setting"

(Hollins & Guzman, 2005, p. 483)

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My goals as a teacher educator

- Recognize and value the various cultures that interact in mathematics classrooms (i.e., teachers, students, classrooms, mathematics)
- Learn to assess *all* students' mathematical knowledge and challenge them to learn more.
- Understand the sociopolitical context of mathematics education.

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The cultures teachers and students bring to school impact all aspects of the teaching-learning process including how they understand and make sense of mathematical concepts and procedures.

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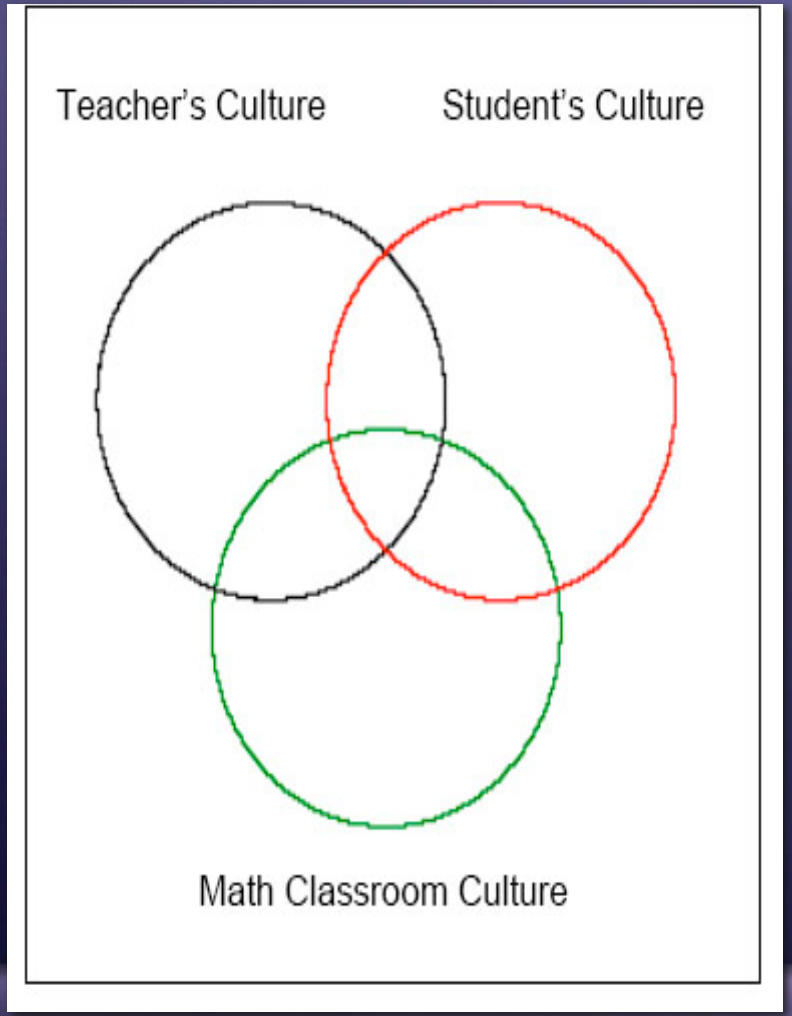
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- "[M]athematics classrooms are inherently cultural spaces where different forms of knowing and being are being validated.
- [W]hat it means to know and understand mathematics, and what counts as productive activity toward knowing and understanding both in our classrooms and in society, is socially and culturally mediated"

(Nasir, Hand, & Taylor, 2006, p 206)

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Culture & Mathematics Teaching



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Research Question

- To what extent does a series of cultural awareness sessions influence preservice teachers' thinking and understanding of the various cultures that interact in mathematics classrooms?

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Participants

- Seventy-two elementary and middle school preservice teachers.
- Elementary Methods course:
  - Second of two elementary methods course (n=54)
- Middle school Methods course
  - First of three middle school courses (n=18)

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Data Sources

- Assignment 1: Article Critique
- Audio-taped Class Discussions
  - Create Cultural Toolkit
  - Share and think about Cultures
- Post-discussion Entry
- Reflective Paper
- Focused Observation Paper & Discussion*

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Assignment 1

Research the available literature for an article that specifically addresses the teaching and/or learning of mathematics to students that are culturally different than yourself.

My Goals:

1. Examine how children's cultures can and should be used to teach mathematics.
2. Reflect on their own views about culture.
3. Have an activity they can use to teach mathematics.

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Student Concerns/ Questions

- Do I have to look at race?
- "I don't understand what you mean"
- Can we focus on academic diversity instead?
- "I don't understand a culture different from my own."

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Class Discussions

Kola Nut Activity

Share Articles through Questions

Create a Cultural Tool Kit

Share Cultures

Expand their thinking about Culture

- What culture is most often reflected in the mathematics classroom? Who benefits? Who does not?

Address Biases and Stereotypes

- How have you been privileged in the mathematics classroom?

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Goal 1: Examine how culture can be used to teach math

- Culture should be considered and embraced in the mathematics classroom.
- The mathematics classroom has a culture.

"We want students to memorize facts and show all work."

- Different cultures are similar and different than their own.
- Cultural differences are often misunderstood, therefore teachers need to learn the cultures of their students.

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Goal 2: Reflect on their own culture

- Most students did not mention their own culture.

"In my culture…."

- Culture was viewed as:
  - Urban vs.. Suburban
  - African American vs.. "I'm not"
- Never thought that some students could not relate to US cultural norms like holidays.

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Goal 3: Have an activity to use as they teach

- New ways to incorporate various techniques in the classroom.
- Different cultures require different modes of instruction, but all can benefit.
- Better prepared to teach to diverse students.
- Need to learn more.

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Assignment 2

- Focused Observation during 4-week field experience
  - What cultures exist in the math classroom?
  - How might a students' culture influence how they learn mathematics?

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Post-observation Discussion

- Compare what they thought about culture to what they actually observed and experienced in mathematics classrooms.
  - Were there opportunities to incorporate students' cultures in the mathematics classroom?
  - What roles do parents and administrators play in the classrooms' mathematics culture?
- Share their views on what teacher educators are doing well and need to do to prepare them to teach diverse learners.

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Closing Thoughts

- It is impossible to prepare preservice teachers for ***all*** the culturally diverse students they will teach.
- Therefore, we must prepare them to be lifelong learners who learn to listen to students, become aware of their own views and teaching, and to learn to modify their practice.

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