

Culture in the Math Classroom: A Path to Improving Student Success

Math Teacher Leadership Center MSP

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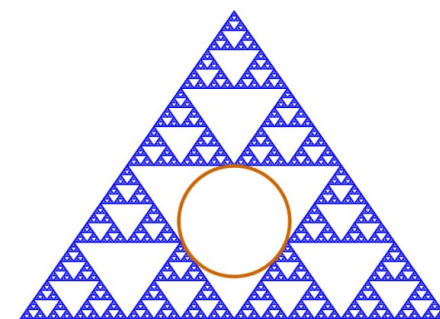
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Agenda

- About the Math Teacher Leadership Center
- Culture and mathematics teaching
- *Culture in the Math Classroom* (CIMC) course
 - Course development and structure
 - Preliminary findings related to course outcomes



UNIVERSITY of
NORTHERN COLORADO



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POUDRE
SCHOOL
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CARBON COUNTY
SCHOOL DISTRICT ONE



*Northeast Colorado Board of Cooperative
Educational Services*



Platte County School District #1

Guernsey-Sunrise
Home of the Vikings

SUBLETTE COUNTY SCHOOL DISTRICT #1

Math Teacher Leadership Center

- Goal
 - Improve effectiveness of mathematics teachers
- Strategies
 - Deepening content proficiency
 - Pedagogical expertise
 - Intercultural competence



Teaching is a cultural activity

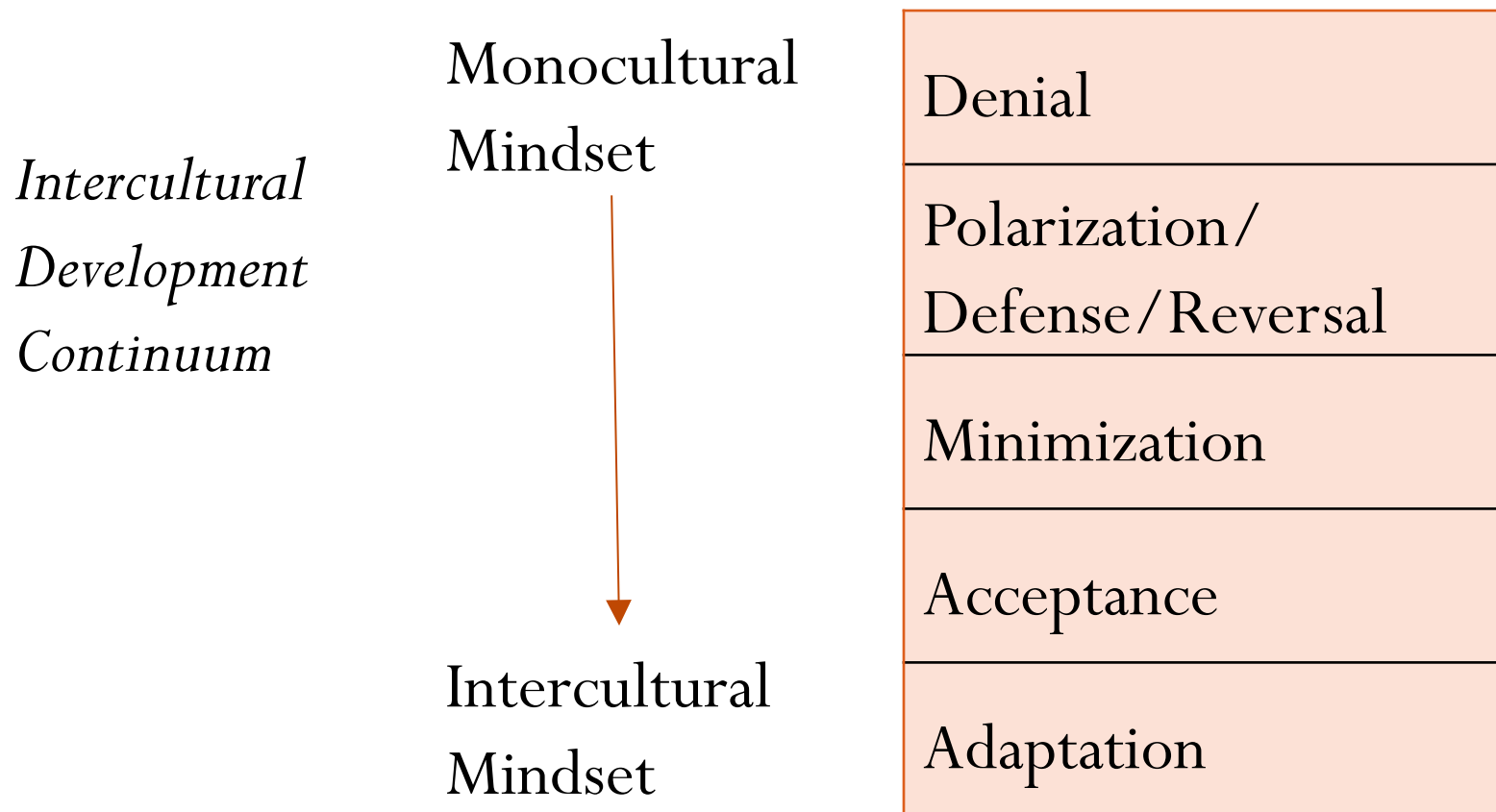


Intercultural Competence

- Culture
 - A dynamic social system containing the values, beliefs, behaviors, and norms of a specific group, organization, society or other collectivity that are learned, shared, internalized, and changeable by all members of the society.
- Intercultural competence
 - Knowledge of how similarities and differences among cultures operate in human interactions
- Culturally relevant pedagogy
 - The process of applying intercultural competence in the classroom

Dimensions of Cultural Differences

Intercultural Development Inventory (IDI)



CIMC Course Purpose

For mathematics teachers to develop the knowledge, skills, and motivation to implement culturally responsive pedagogy in their classrooms so their students become internally motivated and, ultimately, more successful math learners.

CIMC Course Development

- Team development
- Focus groups with the teachers
- Foundation elements
 - A supportive, but challenging place for teachers
 - Practical and meaningful for teachers

Foundation Elements

- A supportive, but challenging place for teachers
 - Respect where the teachers are at
 - Allow all voices/opinions to be heard
 - Challenge teachers without judging or pressuring

Foundation Elements

- Practical and meaningful for teachers
 - Readings were related to mathematics teaching
 - Incorporated theoretical framework to link culturally responsive pedagogy to student motivation
 - Selected accessible and relevant theory-into-practice topics
 - Projects engaged the teachers in their own practice and communities

CIMC Course

- Fall 2010 semester – 14 teachers
- Online
 - Asynchronous communication (Blackboard)
 - Synchronous communication (Elluminate)
- Structure
 - Theory
 - Theory-into-practice
- Projects
 - Community Engagement Project
 - Cultural Inquiry Process (CIP) Project
 - W&G Survey Project

Research

- Phenomenology Study
 - What is the nature of the teachers' perceptions of how the CIMC course influenced their thinking about the role of culture in their teaching practice?
- Data
 - Recorded online classes
 - Online discussion boards
 - Teachers' work
 - Interviews with 5 teachers

CIP Project

- Cultural Inquiry Process (CIP)
- Designed by Evelyn Jacob at George Mason University (Jacob, Johnson, Finley, Gurski, & Lavine, 1996)
- Help teachers maximize student success through action research about cultural influences on students' mathematics participation and learning.
- <http://classweb.gmu.edu/cip/cip-ind.htm>

CIP Project Themes

- Surprises
- Multi-faceted interventions
- Relationship between student attention and student behavior

W&G Survey Project

- Wlodkowski and Ginsberg's (W&G) Motivational Framework
 - Inclusion
 - Meaning
 - Attitude
 - Competence
- Action research
 - Survey
 - Instructional change
 - Survey
 - Reflection

W&G Project Reflection Themes

- Learned valuable instruction strategies from fellow teachers
- Small changes could impact the motivational conditions

Interviews

- Demographics
 - 2 men, 3 women
 - 2 Wyoming teachers, 3 Colorado teachers
- Themes
 - Prior education
 - Awareness
 - Planned instructional changes
 - Would recommend the course

Interviews

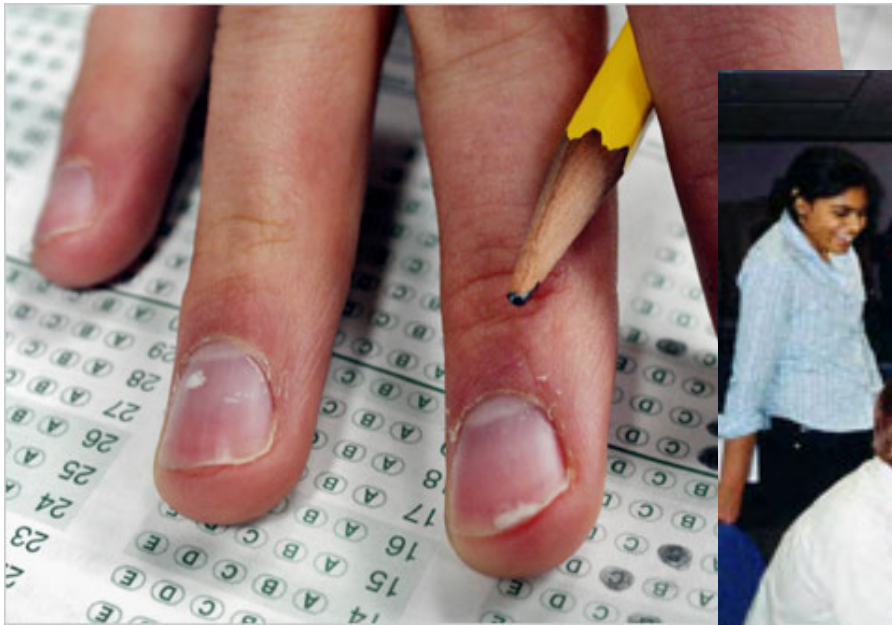
“I definitely will look at my students differently, and will have a different attitude about how I get to know them and the kinds of information that I need to know about them.”

Discussion / Questions

- Course purpose
 - The goal of the course was for mathematics teachers to develop the knowledge, skills, and motivation to implement culturally responsive pedagogy in their classrooms so their students become internally motivated and, ultimately, more successful math learners.
- Course foundations and structure
- Course projects
 - Community Engagement Project
 - CIP Project
 - W&G Survey Project
- Research

Student Success – What is it?

- Culturally responsive teaching perspective
- CIMC course participants' perspective



Ties to Student Success

- Findings from the CIP Project
 - Interventions often results in mediators of student success
 - Interventions often required intensive efforts
 - The specific may inform the general
- Findings from the W&G Survey Project
 - Some teachers found this to be a useful tool
 - Short term instructional changes influenced motivational conditions

Course Evaluation

- Foundational elements were important
- Course outcomes likely supported by a pre-existing community among the teachers
- Course evaluations
 - Response to the projects
 - The safety of the course environment for dealing with uncomfortable ideas
 - Impact on the teachers

Where do we go from here?

- Timing of the course in the program (pros & cons)
- Dispersing the course content throughout the program
- How to connect this course more with student success
- How do we connect increases in ICC with increases in student achievement

Discussion / Questions