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# PREPARING TEACHERS TO ATTEND DELIBERATELY TO EQUITY IN TEACHING MATHEMATICS

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WHERE DISCOVERIES BEGIN



SCHOOL OF  
EDUCATION  
UNIVERSITY OF MICHIGAN

Acknowledging our colleagues:

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# CONTEXT: UNIVERSITY OF MICHIGAN ELEMENTARY TEACHER EDUCATION

- Undergraduate program that was fundamentally redesigned over the last decade and is programmatic
- Field placement (K-8) in diverse settings
- Teaching interns: 8% underrepresented minorities; mostly middle class with a few first-generation college students

*See: [http://www.soe.umich.edu/academics/bachelors\\_degree\\_programs/uete/](http://www.soe.umich.edu/academics/bachelors_degree_programs/uete/)*

# COURSE FOCUS: TEACHING PRACTICES

## Teaching equitably: Attending deliberately to issues of equity

Explaining mathematical ideas  
(focus on number concepts and operations of  
arithmetic)

Leading a whole class discussion  
about mathematics

Assessing students' mathematical  
knowledge, skills, and dispositions

# CHALLENGES FOR TEACHER EDUCATION: MAKING CHANGE—FROM BELIEFS TO ACTION

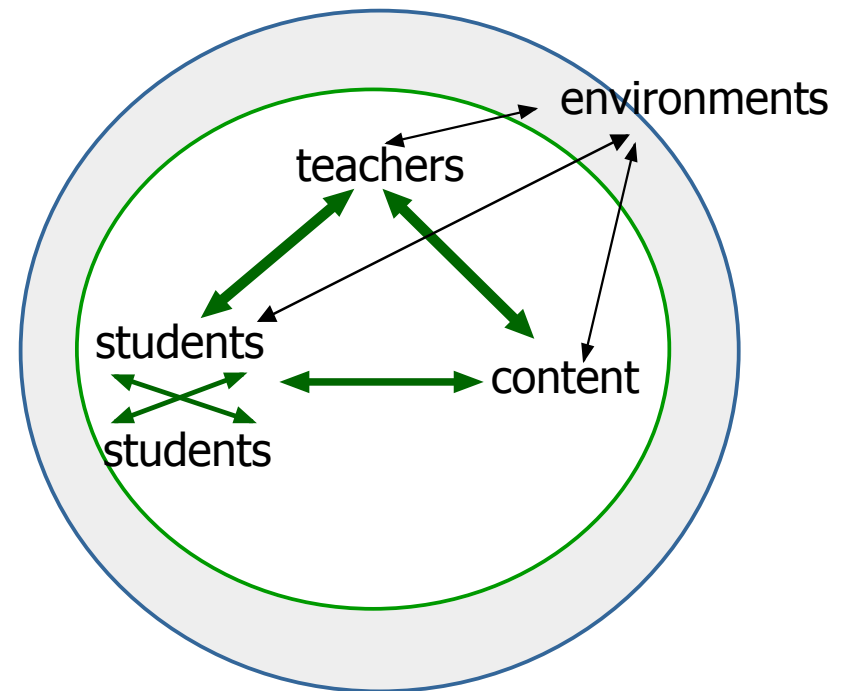
1. Beginning teachers' default reliance on curriculum materials and their own experience as students, “professional” knowledge and values the product of privilege → reproduction of inequality and injustice
2. Awareness of issues of power and privilege related to race, class, and gender, knowledge of institutionalized racism, and commitment to social justice do not necessarily combine to form practice

*So if we want to change this:*

3. Important to identify specific sites in teaching where beginning teachers can leverage actions that promote diversity and redress inequities
4. Need to mobilize resources for this work: knowledge of self, access to others' perspectives, learning to see inequity

# ATTENDING DELIBERATELY TO EQUITY INSIDE OF CLASSROOMS

- Inequity is reproduced inside of instructional practice
- Teachers can have leverage at strategic points in their work
- Breaking this cycle depends on joining concerns for equity with the daily and minute-to-minute work of teaching



(Cohen, Raudenbush, & Ball, 2003)

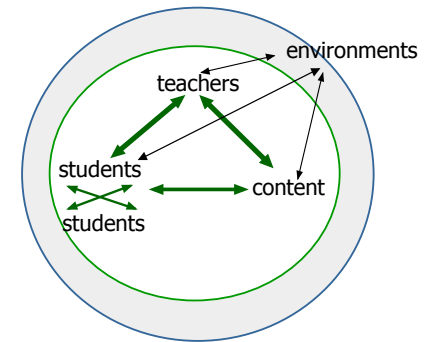
# STRATEGIC SITES IN MATHEMATICS INSTRUCTION TO LEVERAGE ACTIONS THAT PROMOTE DIVERSITY AND AIM TO REDRESS INEQUITIES

① **TASKS:** Make mathematics accessible through the purposeful and context-sensitive selection of mathematical tasks

② **LANGUAGE:** Introduce and model careful use of language

③ **EXPLICITNESS:** Make mathematical practices explicit

④ **SUPPORT FOR PARTICIPATION BY ALL STUDENTS**



# SUPPORT FOR PARTICIPATION BY ALL STUDENTS

## *Requires teachers to:*

- Broaden shared concept of mathematical proficiency and efficacy
- Support students' public classroom work
- Attend to students' positioning in small and whole group contexts
- Attend to whose work is taken up, validated and valued, made public





# OVERVIEW OF THE ACTIVITY

1. Making explicit why “support for participation by all students” is crucial for deliberately intervening on inequities
2. Watch a video clip to identify specific moves that a teacher is making



Identify teaching moves that support the participation of all students by broadening the conception of mathematical proficiency and/or teaching students to do more broadly defined mathematical work.



# TEACHER CANDIDATES' OBSERVATIONS

*Teaching moves that support the participation of all students by broadening the conception of mathematical proficiency and/or teaching students to do more broadly defined mathematical work include:*

- Wrong answers are treated as productive
- Mathematical contributions are explicitly named (and renamed) to highlight productive mathematical work
- Students are explicitly oriented to listen to, respect, and restate one another's mathematical explanations
- Students are taught to ask mathematical questions

# OVERVIEW OF THE ACTIVITY

1. Discussion of why “support for participation by all students” is crucial for promoting diversity and deliberately intervening on inequities
2. Watch a video clip to identify specific moves that a teacher is making to provide support for participation by all students
3. Discussion of identified moves and other possible moves
4. Plan for how such moves might be incorporated into classroom teaching

# QUESTIONS THAT PERSIST FOR US

1. **Considering entry-level standards for practice:** Are these specific practices that promote equity that beginning teachers can learn to do skillfully? How can competency with such practices be appraised?
2. **Considering our learners:** How does the selection of specific entry-level practices depend on the teacher candidates' experiences, identities, etc.?
3. **Considering subject specificity:** What practices that promote equity are (a) generic, (b) similar across subjects, but require attuning to the specifics of the content areas, (c) crucial for or specific to mathematics?

# WHERE WE ARE: PROGRESS AND CHALLENGES

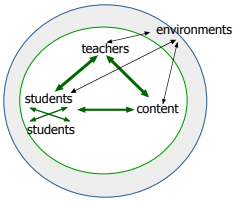
## PROGRESS

- “Programmatic” and coherent nature of the elementary TE program means that teacher candidates are working on understanding issues of race, class, and inequality, as well as learning specific ways to promote equity across their courses
- Demographic diversity in clinical placements means that teacher candidates are working in settings and with children that represent (some of) U.S. diversity

## CHALLENGES

- Lack of diversity in our program means that teacher candidates have weak access to other perspectives and experiences
- How to focus on practice and include serious and action-oriented attention to critical perspectives

# CREDITS



Graphic on slides 5 & 6:

Cohen, D. K., Raudenbusch, S., & Ball, D. L. (2003). Resources, instruction, and research. *Educational Evaluation and Policy Analysis*, 25 (2), 119-142.