



Navigating the Intersections of Content, Pedagogy, and Equity

Denise A. Spangler

dspangler@uga.edu



Mary Frances Early
College of Education
UNIVERSITY OF GEORGIA

Equity

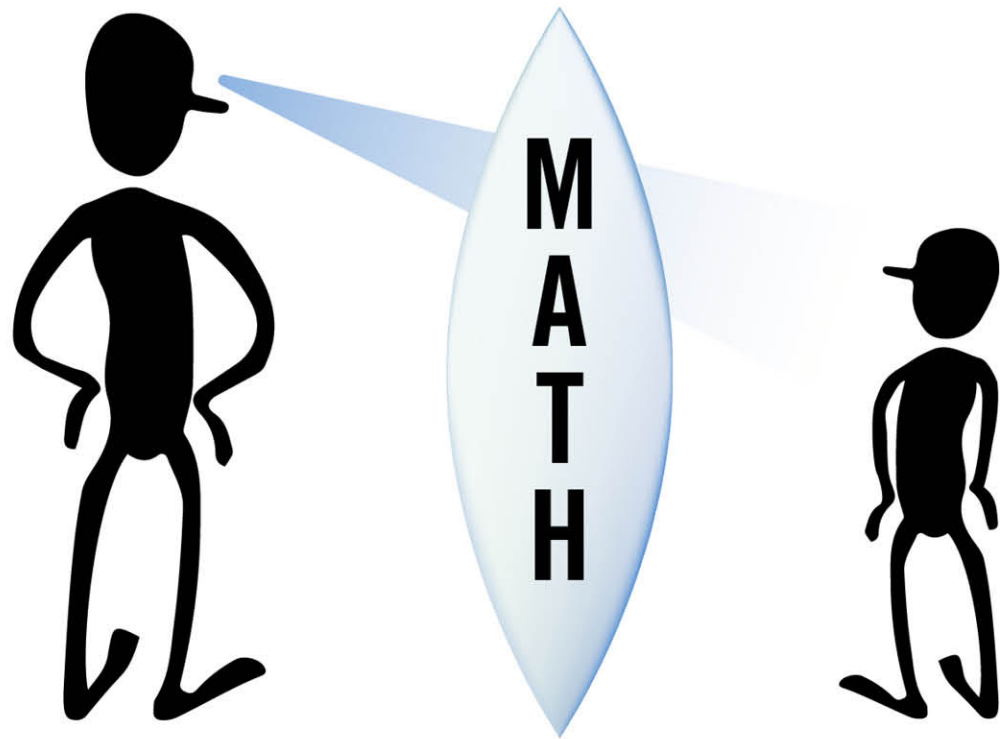
- Implications for student learning
- Implications for teacher success and retention
- “Women need mathematics; mathematics needs women.”

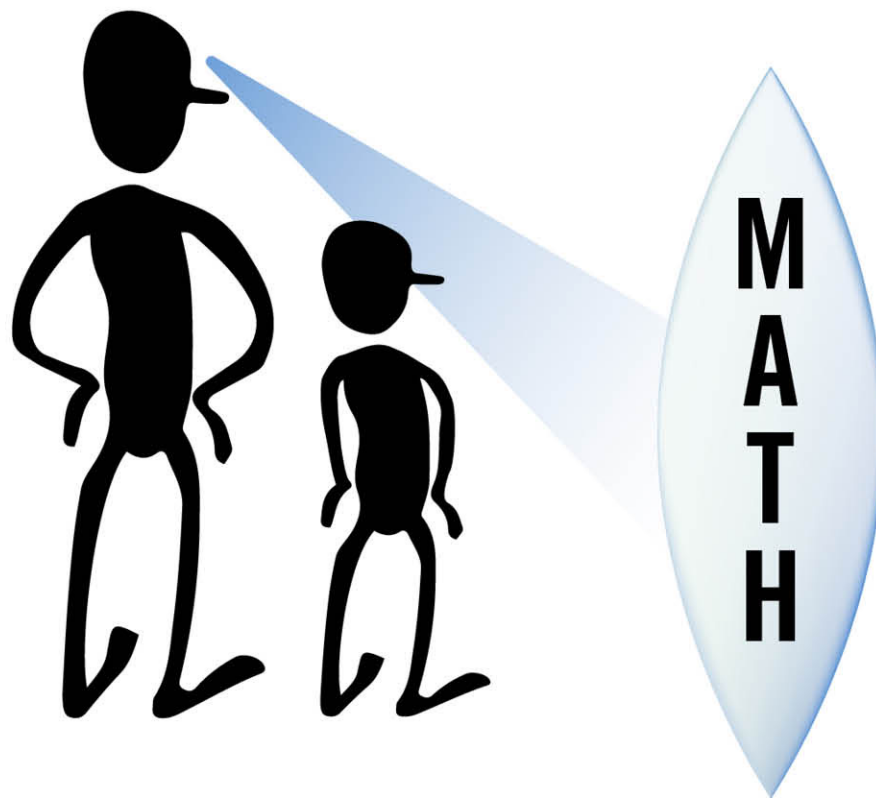


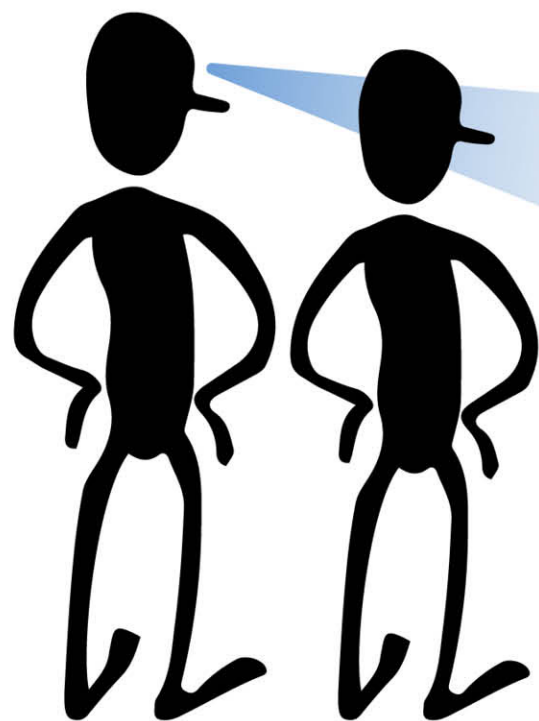
Statistics

- Parallel universe of statisticians and statistics educators with whom we need to collaborate
- [Guidelines for Assessment and Instruction in Statistics Education \(GAISE\)](#)
 - PreK-12 (2020, 2007)
 - College (2016)
- [Statistical Education of Teachers](#)
 - 2015
 - SET II in progress









**Mathematics
Teaching and
Learning**



Teachers come to us with

- Beliefs about themselves as learners of mathematics/statistics
- Views of the discipline—its nature, value
- Ideas about what it means to know and do and to teach and learn mathematics/statistics

They interpret what we are teaching through these lenses.



What do teachers want?

- To teach mathematics/statistics well or better
- For students to learn and like mathematics/statistics

Efficacy

- The degree to which a teacher thinks they can effect student learning



Mathematics Teaching Efficacy

- Correlated with confidence in one's own math ability
- Teachers with strong mathematics teaching efficacy
 - attribute learning to instruction (rather than student characteristics)
 - take risks with new teaching strategies
 - use cognitively engaging teaching approaches
 - attend closely to needs of struggling students
 - have higher work satisfaction

(Cross-Francis et al., in press)



What do teachers think they need?

- Pedagogical techniques (questioning, leading a discussion)
- Tasks, activities
- Sources for tasks, activities, lessons
- Tools (manipulatives, technology, data sets)

Rarely do they say they need more content.



Content learning happens across the career span

- PreK-12 education
- Home, community, play
- Higher education (college algebra, pre-calculus, calculus)
- Mathematics courses for teachers
- Pedagogy courses
- Mentor teachers, children in field placements
- Peers (common planning)
- Their own practice—students, planning
- Professional development



How do we take advantage of this?

- How do we build on this learning?
- How can we leverage these learning spaces?
- Where can we most effectively intervene?



How do we get attention to content?

From teachers and others in the face of

- Declining teacher ed enrollment
- Teachers leaving profession
- Provisionally certified teachers
- Competition from alternative certification
- Questions about value of teacher education
- Competition for limited real estate in programs...reading, social-emotional learning, science, social studies



Avenues for exploration

- Team teaching
- Paired/integrated content/methods courses
- Sequencing of courses (Why is content always first?)
- Less than 3 credits
- K-12 together, SPED, gifted, ESOL
- Get away from mile wide/inch deep.
- MODULE(S2)



To tackle these opportunities we need

- Curiosity
- Humility
- Flexibility
- Critical friends

