

1. **Course Number:** CTSE 7560
Course Title: Equity Issues in Mathematics Education
Credit hours: 3 semester hours
Prerequisites: None
Co-requisites: None
2. **Date Syllabus Prepared:** The syllabus was prepared by Dr. Marilyn Strutchens on August 17, 2008 and modified August 16, 2015.
3. **Text: See Resources.** A collection of journal articles, book chapters, and monographs that focus on multiculturalism and equity in mathematics education and education in general.
4. **Course Description:** The purpose of this course is to address theories and issues related to understanding our multicultural society. Moreover, this course is designed to help in-service teachers and administrators to become aware of beliefs, practices, or situations that may cause particular groups of students not to reach their full mathematics potential. Further, the course will address empowering pedagogy that utilizes students' cultural situations and contributions of different cultures into mathematics instruction.
5. **Course Objectives:** As a result of this course, students will be better able to:
 1. Define equity and establish a theoretical foundation for achieving equity in mathematics education.
 2. Examine barriers to equitable outcomes for all students.
 3. Examine the role of culture in the learning and teaching of mathematics.
 4. Examine students' mathematics achievement through equity lenses.
 5. Analyze specific methodologies posited to increase equity in the mathematics classroom.
 6. Examine reform practices through equity lenses.

6. **Course Content and Schedule:**

8/18/15	Introductions, Why Is There a Need to Address Multiculturalism and Equity in Mathematics Education? Examining Who We Are. Syllabus Every Child Statement Position Statements <ul style="list-style-type: none"> • Access and Equity in Mathematics Education (NCTM, 2014) • Closing the Opportunity Gap in Mathematics Education (NCTM, 2012) • High Expectations (NCTM, 2011) • Intervention (NCTM, 2011) • Teaching Mathematics to English Learners (NCTM, 2008) • Improving Student Achievement by Leading the Pursuit of a Vision for Equity (NCSM, 2008) 	
8/25/2015	Defining Multiculturalism And Equity The following articles will be discussed: <ul style="list-style-type: none"> • Secada, W. G. (2003). Conceptions of equity in teaching science. • Bartell, T. G. & Meyer, M. R. (2008). Addressing the equity principle in the mathematics classroom. • Gutiérrez, R. (2007, Oct). "Context matters: Equity, success, and the future of mathematics education" • Banks, C. A. & Banks, J. A. (1995). Equity pedagogy: Component of multicultural education. • Banks, J. A. (1988). Approaches to multicultural reform. • NCTM (2014). Access and Equity 59-69. 	
9/1/2015	Examine the following websites; <ul style="list-style-type: none"> • American Mathematical Society (AMS) <ul style="list-style-type: none"> – Mathematical Moments: http://www.ams.org/samplings/mathmoments/mathmoments 	No class Autobiography is due. Home Assignment

	<ul style="list-style-type: none"> • Society for Industrial and Applied Mathematics: SIAM – Math Matters: http://www.siam.org/careers/matters.php • We use math: http://weusemath.org/ <ol style="list-style-type: none"> 1. How can you use the materials to motivate students to do mathematics? 2. Pick one activity from each site and discuss how you would use it in one of your classes or at your grade level. Be prepared to share what you learn in class. 	
9/8/2015	Theories Related to Equity The following articles will be discussed: <ul style="list-style-type: none"> • Dixon, A.D., & Rousseau, C.K. (2005). And we are still not saved: Critical race theory in education ten years later. • Bartlett, L., & Brayboy, B. M. J. (2005). Race and schooling: Theories and ethnographies. • Fryer, R. G. (2006). "Acting white": The social price paid by the best and brightest minority students. 	Summaries of Website Explorations are due.
9/15/2015	Theories Related to Equity The following articles will be discussed: <ul style="list-style-type: none"> • Gutstein, E. (2003). Teaching and learning mathematics for social justice in an urban, Latino school • Herbel-Eisenmann, B., Bartell, T.G., Breyfogle, M. L., Kristin Bieda, K., Crespo, S., Dominguez, H., & Drake, C. (2013). Strong is the silence: Challenging interlocking systems of privilege and oppression in mathematics teacher education. 	
9/22/2015	Examining Barriers to Equitable Outcomes for All Students The following articles will be discussed: <ul style="list-style-type: none"> • Bay-Williams, J. & Herrera, S. (2007). Is "just good teaching" enough to support the learning of English Language Learners? Insights from sociocultural learning theory. • Flores, A. (2007). Examining disparities in mathematics education: Achievement gap or opportunity gap? • Oakes, J. (1992). Can tracking research inform practice? Technical, normative, and political considerations. 	Lead Role #1 in Group discussion
9/29/2015	Examining the Role of Culture in the Learning and Teaching of Mathematics The following articles will be discussed: <ul style="list-style-type: none"> • Bishop, A. J. (1988). Mathematics education in its cultural context • D'Ambrosio, U. (2001). What is ethnomathematics, and how can it help children in schools? • González, N., Andrade, R., Civil, M., Moll, L. (2001). Bridging funds of distributed knowledge: Creating zones of practices in mathematics. • Strutchens, M. E. (1995). Multicultural mathematics: A more inclusive mathematics. 	Lead Role #2 in Group Discussions
10/6/2015	Examining Students' Mathematics Achievement Through Equity Lenses The following articles will be discussed: <ul style="list-style-type: none"> • Rousseau-Anderson, C. (2007). Examining school mathematics through the lenses of learning and equity. • Stiff & Johnson. (2011). Mathematical reasoning and sense making begins with the opportunity to learn. 	
10/13/2015	Presentations related to issue briefs.	Issue Brief is due.
10/20/2015	Exploring Specific Methodologies Dubbed For Increasing Equity In The Mathematics Classroom The following articles will be discussed:	

	<ul style="list-style-type: none"> Boaler, J. (2011). Stories of success: Changing students' lives through sense making and reasoning. Moschkovich, J. (2011). Supporting mathematical reasoning and sense making for English Learners. Dieker, L., Maccini, P., Hunt, J., & Strickland, T. (2011). Making mathematical reasoning and sense making a reality for all: Minimizing weaknesses and maximizing the strengths of students with disabilities. 	
10/27/2015	Exploring Specific Methodologies Dubbed For Increasing Equity In The Mathematics Classroom The following articles will be discussed: <ul style="list-style-type: none"> Teague, D., Avineri, T., Belledin, C., Graves, J., Noble, R., Hernandez, M., Robinson, D. (2011). Issues of equity for advanced students. Strutchens, M. S., Quander, J. R., & Gutiérrez, R. (2011). Mathematics learning communities that foster reasoning and sense making for all high school students. 	Lead Role #3 in a discussion.
11/03/2015	Exploring Specific Methodologies Dubbed For Increasing Equity In The Mathematics Classroom The following articles will be discussed: <ul style="list-style-type: none"> Aguirre, J., Mayfield-Ingram, K. , & Martin, D. B. (2013). Identities, agency, and mathematical proficiency: What teachers need to know to support student learning Cohen, E., Lotan, R., Scarloss, B. & Arellano, B. (1999). Complex Instruction: Equity in cooperative learning classrooms 	
11/10/2015	Reports on Social Justice Lesson are due.	
11/17/2015	Reports on Culture-Inclusive Lesson are due	
11/24/2015	Thanksgiving Holiday Break	
12/01/2015	Cultural Group Presentations are due.	
12/8/2015	Final Exam	

7. Course Requirements and Evaluation:

To accomplish the goals and objectives we will participate in several activities over the semester. They cover roughly reading and discussing literature about multiculturalism and equity in mathematics education, reading theoretical articles and other articles related to equity issues in general, experiencing culturally inclusive instructional practices, developing culture-inclusive mathematics modules based on secondary or middle grades mathematics topics, reviewing and critiquing books focusing on equity issues, and responding to writing prompts.

Since this is a very small enrollment course with a seminar environment, we expect that each participant will contribute actively to discussions based on readings and other assignments. Grades will be based on level and quality of class and written work. Each written assignment will be reviewed and feedback given for revision where desired. **All assignments must be typewritten and double-spaced. Use size 12-font.** Points will be deducted from assignments for grammatical mistakes, typos, and spelling errors. The assignments will be graded on a point scale as follows:

<u>Course Requirements and Assignments</u>	<u>Assignment</u>	<u>Points</u>
1.	Autobiography Related to Equity	50
2.	Website Explorations	100
3.	Issue Brief	50
4.	Report on Social Justice Lesson	50
5.	Report on Culture-Inclusive Lesson	50

6. Report on Issues Related to a Particular Cultural Group	100
7. Lead Role in Group discussion (3@50 points each)	150
8. Final Exam	100
Total	650

Final course grades will be assigned based on the percentage of possible points earned by students.

- A 90% or above
- B 80 % - 89%
- C 70% - 79%
- D 0% - 69%

Descriptions of Major Assignments

Autobiography Related to Equity

This is an opportunity for you to reflect on experiences you have had as a mathematics teacher and a person with regards to diversity. Please focus on you:

1. Describe who you are in terms of your racial, ethnic, linguistic, and intellectual heritage and your social class--and how you developed as a mathematics teacher.
2. Describe what it means to be quantitatively literate.
3. Describe your early learning experiences related to mathematics and your experiences with issues of race, class, and social justice--and the connections you make between the two.
4. Describe how these experiences have influenced your ideas on how people develop mathematical skills and how teachers of mathematics can facilitate their development.
5. If you have not already done so in answering the questions above, describe an experience when you felt that you stood out because of your race, class, gender, culture, or personal characteristics.

This paper should be NO MORE than six pages long (double-spaced, 12 point type. It should be written in first person. Also think about what you would be willing to share with the whole group during class discussion.

Issue Brief

You will prepare an issue brief (eight to ten pages). The issue brief should focus on an issue related to equity in the mathematics classroom. You must:

- 1) Define the issue in mathematics education.
- 2) Describe advantages and disadvantages of two or more suggested responses (or approaches); i.e., summarize major arguments,
- 3) Discuss the strengths and weaknesses of the related research studies.
- 4) Include, in APA format, a list of at least 6-8 key references.

Papers are assessed on quality of ideas, quality of writing, adherence to APA format, use of key sources, integration of ideas from other readings, class discussions, etc. You will discuss your paper in class 5 minutes).

Lead Role in Group Discussions

During the semester you will be asked to lead three discussions. You will be in charge of leading the discussion for a barrier to equitable outcomes, a role of culture in the mathematics classroom and an equitable teaching strategy. You will be responsible for handouts and any other materials needed to lead the discussion. Your discussion should not last longer than 30 minutes.

1. Discussion I: Barrier to Equitable Outcomes. (Pairs) You will need to find one recent article to supplement the article that will be provided for you. You should make a copy of the article for everyone in the class or bring the article to me so that I can copy it for the class. Your goal is to show why the barrier is a barrier. Discuss any obstacles to removing the barrier. Discuss any attempts to remove the barrier and the results.

2. Discussion II: A Role of Culture in the Mathematics Classroom (Pairs). You will give a presentation based on the literature related to a particular role that culture can play in the mathematics classroom. You should include an activity that demonstrates this role for group participation.
3. Discussion III: Equitable Teaching Strategy (Pairs). You will lead the discussion related to a particular teaching strategy posited to increase equitable outcomes. You will present research related to the strategy and conduct an activity with the class.

Culture-Inclusive Lesson

You will write a culture-inclusive lesson based on an elementary, middle, or high school mathematics topic. The lesson must be based on the ideas discussed in class and the Principles and Standards for School Mathematics. You will also teach the lesson and report the results to the class.

The lesson should include the following components:

1. Purpose: State the overall goal of the lesson and how it fits into the unit in which the mathematical topic is normally addressed.
2. Title of lesson: This should identify the general content to be covered.
3. Audience: To whom is the lesson addressed, including course or level.
4. Content Objectives: Definitions of the mathematical concepts and skills that underlie the lesson that you are teaching, written at a level that will match the students you are teaching.
5. Behavioral Objectives: The actual behaviors that you hope to observe students doing during the lesson. These should be given in behavioral terms, often stated in the form "The student will..."
6. Common Core State Standards: List the objectives addressed.
7. Cultural Objectives: List of cultural objectives addressed.
8. Prerequisites: Assumptions about what mathematics the students should already know in order to effectively engage in this lesson.
9. Materials: Any special instructional materials needed for the lesson. Attach copies of any worksheets that will be used.
10. Procedure: What you are actually going to do. This should set forth the over-all flow of activity throughout the lesson. The plan should be detailed enough that a qualified person could successfully carry out the lesson.
11. Your lesson will likely consist of several phases. For each phase, include:
 - a. *Overview.* A brief description of what will happen in that phase; a title for the section will suffice.
 - b. *Grouping.* How the students will be grouped.
 - c. *Tasks or examples.* Give the exact problems as they will be stated to the students. Do not just state the kinds of problems.
 - d. *Key questions.* Give these questions exactly as you would actually ask them of the students. These should be attached to the flow of activity.
 - e. *Transitions.* Decision points for deciding what should happen next.
12. You may also want to include some extensions that could be given to advanced students or modifications that you would make for less-able students.

13. Evaluation: Observations that you will be making throughout the lesson, or additional tasks that the students will complete so that you can evaluate their learning. Include what you are looking for, and what you hope to learn from your observations.

14. Key References

Social Justice Lesson

You will write a social justice lesson based on a mathematics topic appropriate for your grade level. The lesson must be based on the ideas discussed in class and the *Principles to Actions / Common Core State Standards for Mathematics*. You will teach the lesson and share the results with the class.

The lesson should include the following components:

1. Purpose: State the overall goal of the lesson and how it fits into the unit in which the mathematical topic is normally addressed.
2. Title of lesson: This should identify the general content to be covered.
3. Audience: To whom is the lesson addressed, including course or level.
4. Content Objectives: Definitions of the mathematical concepts and skills that underlie the lesson that you are teaching, written at a level that will match the students you are teaching.
5. Behavioral Objectives: The actual behaviors that you hope to observe students doing during the lesson. These should be given in behavioral terms, often stated in the form "The student will..."
6. Common Core State Standards: List the objectives addressed.
7. Social Justice Objectives: List of social justice objectives addressed.
8. Prerequisites: Assumptions about what mathematics the students should already know in order to effectively engage in this lesson.
9. Materials: Any special instructional materials needed for the lesson. Attach copies of any worksheets that will be used.
10. Procedure: What you are actually going to do. This should set forth the over-all flow of activity throughout the lesson. The plan should be detailed enough that a qualified person could successfully carry out the lesson.
11. Your lesson will likely consist of several phases. For each phase, include:
 - a. *Overview*. A brief description of what will happen in that phase; a title for the section will suffice.
 - b. *Grouping*. How the students will be grouped.
 - c. *Tasks or examples*. Give the exact problems as they will be stated to the students. Do not just state the kinds of problems.
 - d. *Key questions*. Give these questions exactly as you would actually ask them of the students. These should be attached to the flow of activity.
 - e. *Transitions*. Decision points for deciding what should happen next.
12. You may also want to include some extensions that could be given to advanced students or modifications that you would make for less-able students.
13. Evaluation: Observations that you will be making throughout the lesson, or additional tasks that the students will complete so that you can evaluate their learning. Include what you are looking for, and what you hope to learn from your observations.

14. Key References

Presentation on Equity Issues Germane to a Particular Cultural Group

You will create a presentation about a particular cultural group. You should include the following information:

1. What obstacles and barriers to receiving an equitable mathematics education are particular to the cultural group? How did you respond to reading about these barriers and obstacles?
2. List at least five pedagogical strategies posited by researchers to be helpful to raising the mathematical achievement of the group you are addressing. What do you think about these strategies?
3. Relate other major issues that have been addressed in class to the group.
4. Discuss revelations that you experienced as you created your report.
5. Include a reference list:
 - a. Refereed journal articles
 - b. Scholarly books related to the group
6. Create a 2-page summary of major issues addressed for classmates and be prepared to discuss your findings in 5-minutes.

8. **Class Policy Statements:**

Participation: Students are expected to participate in all class discussions and participate in all exercises. It is the student's responsibility to contact the instructor if assignment deadlines are not met. Students are responsible for initiating arrangements for missed work.

Attendance/Absences: Attendance is required at each class meeting. If an exam is missed, a make-up exam will be given only for University-approved excuses as outlined in the Tiger Cub. Arrangement to take the make-up exam must be made in advance. Students who miss an exam because of illness need a doctor's statement for verification of sickness and should clear the absence with the instructor the day they return to class. Other unavoidable absences from campus must be documented and cleared with the instructor **in advance**.

Unannounced quizzes: There will be no unannounced quizzes.

Accommodations: Students who need accommodations are asked to arrange a meeting during office hours the first week of classes, or as soon as possible if accommodations are needed immediately. If you have a conflict with my office hours, an alternative time can be arranged. To set up this meeting, please contact me by e-mail. Bring a copy of your Accommodation Memo and an Instructor Verification Form to the meeting. If you do not have an Accommodation Memo but need accommodations, make an appointment with the Program for Students with Disabilities at 1244 Haley Center, 844-2096 (V/TT).

Honesty Code: The University Academic Honesty Code and the Tiger Cub Rules and Regulations pertaining to Cheating will apply to this class.

Professionalism: As faculty, staff, and students interact in professional settings, they are expected to demonstrate professional behaviors as defined in the College's conceptual framework. These professional commitments or dispositions are listed below:

- Engage in responsible and ethical professional practices
- Contribute to collaborative learning communities
- Demonstrate a commitment to diversity
- Model and nurture intellectual vitality

Distance Learning Students: Unless specific instructions have been given for a designated course, students in distance education courses shall take all closed resource examinations under the supervision of an approved proctor.

Examples of approved proctors include a school superintendent, a principal of a high school, or a dean or department head of a college. Proctors shall be verified and exams shall be sent directly to the proctor who will manage the examination in a secure manner, requiring students to present a picture ID.

Resources

Definitions of Equity and Multiculturalism

- Banks, C. A. & Banks, J. A. (1995). Equity pedagogy: Component of multicultural education. *Theory into Practice*, 34(3), 152-158.
- Banks, J. A. (1988). Approaches to multicultural reform. *Multicultural Leader*, 1(2), 1-3.
- Gutiérrez, R. (2007, Oct). "Context matters: Equity, success, and the future of mathematics education". Paper presented at the annual meeting of the North American Chapter of the International Group for the Psychology of Mathematics Education, University of Nevada, Reno, Reno, Nevada Online. Retrieved 2008-06-25 from http://www.allacademic.com/meta/p228831_index.html
- National Council of Teachers of Mathematics (2000). *Principles and standards for school mathematics*. Reston, VA: Author.
- National Council of Teachers of Mathematics (2014). *Principles to actions: Ensuring mathematical success for all*. Reston, VA: Author.
- Secada, W. G. (2003). Conceptions of equity in teaching science. Unpublished manuscript.
- Stenmark, J. K. (1989). What is mathematics equity? *Arithmetic Teacher*, 36(5), 3.

Theories Related to Achieving Equity

- Bartlett, L., & Brayboy, B. M. J. (2005). Race and Schooling: Theories and ethnographies. *The Urban Review*, 37(5), 361 - 374.
- Dixon, A.D., & Rousseau, C.K. (2005). And we are still not saved: Critical race theory in education ten years later. *Race, Ethnicity, and Education*, 8(1), 7-27.
- Fryer, R. G. (2006). "Acting white": The social price paid by the best and brightest minority students. *Education Next*, 6(1), 52-59.
- Gutstein, E. (May 2007). Possibilities and challenges in teaching mathematics for social justice. *Working Paper prepared for the Third Annual Symposium of the Maryland Institute for Minority Achievement and Urban Education*, College Park, MD.
- Herbel-Eisenmann, B., Bartell, T.G., Bieda, K., Breyfogle, M. L., Crespo, S., Dominguez, H., & Drake, C. (2013). Strong is the silence: Challenging interlocking systems of privilege and oppression in mathematics teacher education. *Journal of Urban Mathematics Education*, 6(1), 6-18.
- Ladson-Billings, G. & Tate, W. F. (1995). Toward a critical race theory of education. *Teachers College Record*, 97 (1), 47-68.
- Ladson-Billings, G. (1999). Just what is critical race theory, and what's it doing in a nice field like education? In L. Parker, D. Dehyle, and S. Villenas (Eds.), *Race is, race isn't: Critical race theory and qualitative studies in education* (pp. 7 – 30). Boulder: Westview Press.
- Oakes, J. (1995). Opportunity to learn: Can standards-based reform be equity-based reform? In I. M. Carl (Ed.) *Seventy-five years of progress: Prospects for school mathematics*, (pp. 78 -98). Reston, VA: The National Council of Teachers of Mathematics, Inc.
- Weiler, K. (1988). Women teaching for change: Gender, class and power. *Critical studies in Education*. New York: Bergin & Garvey.

Examining Barriers to Equitable Outcomes for All Students

- Bay-Williams, J. & Socorro, H. (2007). Is "just good teaching" enough to support the learning of English Language Learners? Insights from sociocultural learning theory. In W. G. Martin & M. E. Strutchens (Eds.), *The learning of mathematics, Sixty-Ninth Yearbook*, (pp. 43 -63). Reston, VA: National Council of Teachers of Mathematics.
- Flores, A. (2007). Examining disparities in mathematics education: Achievement gap or opportunity gap? *High School Journal*, 91(1), 29-42.
- Moschkovich, J. (2002). A situated and sociocultural perspective on bilingual mathematics learners. *Mathematical Thinking And Learning*, 4(2&3), 189–212.

Negative Stereotypes and Beliefs

- Paine, L. (1989). Orientation towards diversity: What do prospective teachers bring? (Research Report 89-9). East Lansing: Michigan State University, National Center for Research on Teacher Learning.
- Sleeter, C. E. (1997). Mathematics, multicultural education, and professional development. *Journal for Research in Mathematics Education*, 28, 680-696.
- Strutchens, M. E. (2000). Confronting beliefs and stereotypes that impede the mathematical empowerment of African American Students. In M. E. Strutchens, M. Johnson, & W. Tate (Eds.). *Changing the Faces of Mathematics: Perspectives on African Americans* (pp. 7–14). Reston, VA: National Council of Teachers of Mathematics.
- Weissglass, J. (2000). No compromise on equity in mathematics Education: Developing an infrastructure. In W. G. Secada (Ed), *Changing the faces of mathematics: Perspectives on multiculturalism and gender equity* (pp. 5-24). Reston, VA: National Council of Teachers of mathematics.
- Weissglass, J. (2002). Inequity in mathematics education: questions for educators. *The Mathematics Educator*, 12(2), 34-39.

Tracking

- Oakes, J. (1990). Opportunities, achievement, and choice: Women and minority students in science and mathematics. In C. B. Cazden (Ed.), *Review of research in education, Vol. 16*. (pp. 153-222). Washington, DC: American Educational Research Association.
- Oakes, J. (1992). Can tracking research inform practice? Technical, normative, and political considerations. *Educational Researcher*, 12-21.
- Oakes, J., & Franke, M. (1999, April). Detracking, mathematics, and the possibility of equitable reform. Paper presented at the Research Presession meeting of the National Council of Teachers of Mathematics, Orlando, FL.
- Useem, E. L. (1990, April). Social class and ability group placement in mathematics in the transition to seventh grades: The role of parental involvement. Paper presented at the annual meeting of the American Educational Research Association, Boston.

Poverty and Related Issues

- Anyon, J. (1995). Race, social class, and educational reform in an inner-city school. *Teachers College Record*, 97, 69-94.
- Delpit, L. D. (1988). The silenced dialogue: Power and pedagogy in educating other people's children. *Harvard Educational Review*, 58(3), 280-298.
- Haberman, M. (1991). The pedagogy of poverty versus good teaching. *Phi Delta Kappan*, 73, 290-294.
- National Council of Teachers of Mathematics (1999). *Teaching and learning mathematics in poor communities: A report to the Board of Directors of the National Council of Teachers of Mathematics*. Reston, VA: National Council of Teachers of Mathematics.

Examining the Role of Culture in the Learning and Teaching of Mathematics

Mathematics in Its Cultural Context

- Bishop, A. J. (1988). Mathematics education in its cultural context. *Educational Studies of Mathematics*, 19, 179-191.

Ethnomathematics

- D'Ambrosio, U. (1985). Ethnomathematics and its place in the history and pedagogy of mathematics. For *The Learning of Mathematics*, 5(1), 44-48.
- D'Ambrosio, U. (2001). What is ethnomathematics and how can it help children in schools. *Teaching Children Mathematics*, 7(6), 308-310.
- Carraher, T. N., D. W. Carraher and A. D. Schliemann (1987). Written and oral mathematics. *Journal for Research in Mathematics Education*, 18, 83-97.

Multicultural Contributions to the History of Mathematics

- Anderson, S. E. (1990). Worldmath curriculum: Fighting Eurocentrism in mathematics. *The Journal of Negro Education*, 59, 348-359.
- Nelson, D., Joseph, G. G., & Williams, J. (1993). *Multicultural mathematics: Teaching mathematics from a global perspective*. New York: Oxford University Press.

Culture Inclusive Mathematics

- Frankenstein, M. (1990). Incorporating race, class, and gender issues into a critical mathematical literacy curriculum. *The Journal of Negro Education*, 59, 336-347.
- Strutchens, M. (1995). Multicultural mathematics: A more inclusive mathematics. *Eric Digest, Clearinghouse for Science, Mathematics, and Environmental Education*, EDO-SE-95-3, March.

Examining Students' Mathematics Achievement Through Equity Lenses

- Rousseau-Anderson, C. (2007). Examining school mathematics through the lenses of learning and equity. In W. G. Martin & M. E. Strutchens (Eds.), *The learning of mathematics, Sixty-Ninth Yearbook*, (pp. 97-112). Reston, VA: National Council of Teachers of Mathematics.
- Tate, W. F. (2005). *Access and opportunities to learn are not accidents: Engineering mathematical progress in your school*. Greensboro, NC: The Southeast Eisenhower Regional Consortium for Mathematics and Science (SERC) at SERVE.

National Achievement Results and Interpretations

- Lubienski, S. T., & Crockett, M.D. (2007). NAEP findings regarding race and ethnicity: Mathematics achievement, student affect, and school-affect, and school-home experiences. In P. Kloosterman and F. K. Lester (Eds.), *Results and interpretations of the 2003 mathematics assessment of the National Assessment of Educational Progress*, (pp. 227 – 260). Reston, VA: National Council of Teachers of Mathematics.
- McGraw, R. & Lubienski, S. T. (2007). NAEP findings related to gender: Achievement, student affect, and learning experiences. . In P. Kloosterman and F. K. Lester (Eds.), *Results and interpretations of the 2003 mathematics assessment of the National Assessment of Educational Progress*, (pp. 261-287). Reston, VA: National Council of Teachers of Mathematics.
- Silver, E. A., Strutchens, M. E., & Zawojewski, J. (1997). NAEP findings regarding race/ethnicity and gender: affective issues, mathematics performance, and instructional context. In P. A. Kenney and E. A. Silver (Eds.) *Results from the Sixth Mathematics Assessment of the National Assessment of Educational Progress* (pp. 33-59). Reston, VA: National Council of Teachers of Mathematics.
- Strutchens, M. E., and Silver, E. A. (2000). NAEP findings regarding race/ethnicity: The students, their performance, and their classrooms. In E. A. Silver and P. A. Kenney (Eds.), *Results from the seventh mathematics assessment of the National Assessment of Educational Progress* (pp. 45 -72). Reston, VA: National Council of Teachers of Mathematics.
- Tate, W. F. (1997). Race-ethnicity, SES, gender, and language proficiency trends in mathematics achievement: An update.” *Journal for Research in Mathematics Education*, 28, 652-679.
- Singham, M. (1998). The canary in the mine: The achievement gap between Black and White students. *Phi Delta Kappan*, 80, 9-15.

Exploring Specific Methodologies Dubbed for Increasing Equity in the Mathematics Classroom

- Aguirre, J.M., Mayfield-Ingram, & Martin, D.B. (2013) *The impact of identity in K-8 mathematics: rethinking equity-based practices*. Reston, VA: National Council of Teachers of Mathematics.
- Campbell, Patricia F. & Johnson, Martin L. (1995). How primary students think and learn. In Iris M. Carl (Ed.) *Seventy-five years of progress: Prospects for school mathematics*, (pp. 21-42). Reston, VA: The National Council of Teachers of Mathematics, Inc.
- Campbell, P. F. & Rowan, T. E. (1997). Teacher questions + student language + diversity mathematical power. In J. Trentacosta & M. J. Kenney (Eds.) *1997 NCTM yearbook multicultural and gender equity in the mathematics classroom: The gift of diversity*. Reston, VA: The National Council of Teachers of Mathematics, Inc.
- Moses, R. P., M. Kamii, S. M. Swap and J. Howard (1989). The Algebra Project: Organizing in the Spirit of Ella. *Harvard Educational Review*, 59, 4, 423-443.
- Silver, E. A., and Stein, M.(1996). The QUASAR Project: the “revolution of the possible” in mathematics instructional reform in urban middle schools. *Urban Education* , 30(4), 476-521.
- Strutchens, M.E. & Quander, J. R. (Eds.). (2011). *Focus in high school mathematics: Fostering reasoning and sense making for all students*. Reston, VA: National Council of Teachers of Mathematics.

Suggested Teaching Strategies

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