

Title

Gender Equity in the Mathematics Classroom for Grades 4-8

Target Audience

This course is intended for pre-service and in-service 4-8 teachers.

Course Description

The NCTM Equity Principle states, “Excellence in mathematics education requires equity—high expectations and strong support for all students.” This course explores ways of creating classroom environments in middle school that are equally supportive of girls’ and boys’ success in math. Learners will examine the unique social and academic needs of girls at this point in their development, with an eye towards encouraging pursuit of mathematics in high school and beyond. Learners will evaluate their own teaching styles and examine strategies for improvement. As a final task, learners will find ways to create or maintain gender equitable mathematics curricula in their classroom or their school.

Facilitator

See instructor/facilitator sheet

Credits

To be determined by college or university

Goals and Objectives

Learners will:

- Be able to communicate what gender equity means in the mathematics classroom.
- Have a basic understanding of current research on this topic and how it applies to their teaching.
- Identify some of the main areas in which they can work to increase gender equity in their classrooms, as well as specific educational practices and strategies they can use.
- Develop a gender equity action plan they can implement in their classrooms.

Outline of Content and Assignments

After previewing the course introductory information, learners will proceed to the Assignments section to complete the following six sessions, working through each session, or part, in order. Throughout the sessions, learners are asked to articulate their ideas in various forms. They are encouraged to reflect on their ideas and experiences in their learning logs. The weekly discussions are designed to foster the articulating and sharing of ideas and strategies. Towards the end of the course, learners will complete their choice of a final project. The sessions are as follows:

Session 1: Orientation

Session 2: Gender and the Curriculum

Session 3: Classroom Expectations and Interactions

Session 4: Assessment and Gender Equity in Mathematics

Session 5: Winning Family and Community Support for Mathematics Achievement

Session 6: Planning Next Steps



This course is designed to address NCTM's *Principles and Standards for School Mathematics* (PSSM 2000). These standards reflect some of the most current research on mathematics teaching and learning, and present a vision of instruction that should enable all students to solve challenging problems.

Part I: Orientation

Learners will:

Test their computers

- Run "The Wizard"
- Install all required plug-ins to run PBS TeacherLine courses

Become familiar with the course Web site

- Click on the different sections of the course.
- Click the "View Video" button to watch a short, informative video about preparing themselves to think like a learner as well as a teacher for this course.
- Run the "Launch Applet" program
- Download a copy of the learning log, used to describe how the math problems presented in this course were solved
- Open the learning log to get acquainted with the kinds of questions that learners will answer throughout the course
- Print out the Digital Drop Box instructions for later use (used to post learning log to the facilitator)

Read

- "Gender Equity in the Mathematics Classroom." Learners should think about which issues interest them the most and are relevant to their own teaching practice.
- "The Equity Principle." NCTM's *Principles and Standards for School Mathematics* (PSSM 2000) asserts that this principle should be deeply intertwined with school mathematics programs.

Collaborate

- Introduce themselves on the Discussion Board
- Learn how to communicate by posting messages on the board

Part 2: Gender and the Curriculum

Learners will:

- Learn ways in which curricula can be biased.
- Identify curriculum-based strategies that promote equity.
- Develop skills to evaluate curricula and to counteract bias in the curriculum.

Read

- "Gender and the Curriculum." Curricula—the formal and informal content of the lessons and the students' work—are central to creating the types of classrooms that will be equitable for girls and boys. This reading briefly reviews how to determine if a gender bias is present in a curriculum and if a curriculum affirmatively promotes the participation and achievement of both girls and boys.

Activity

- Learners will examine the curriculum presently used in at least one of their courses for any areas of bias, or where it may not encourage students who have a "different" set of learning styles.

Record in their learning log

- Answer questions pertaining to the curriculum examination in their learning log.

Participate in an online discussion

- Read and post responses on the Discussion Board. Learners should discuss whether or not they had the opportunity to review or use a curriculum that could be characterized as excellent in involving and encouraging both genders.

Part 3: Classroom Expectations and Interactions

Learners will:

- Identify ways that gender-shaped experiences and expectations can influence their teaching and their students learning in the mathematics classroom.
- Recognize gender-fair teacher-student and student-student interactions.
- Identify strategies for promoting equitable classroom interactions.

Read

- "Expectations in the Classroom." This article provides a summary of the research on expectations in the classroom as well as practical strategies for promoting equality in the classroom.

View

- Two short video clips of classroom interactions, looking for any differences in the teacher's or students' behaviors based on gender.
- Another short video clip of classroom interactions based on the teacher soliciting answers from the whole class. Learners watch for any differences in the ways in which boys and girls respond to the teacher.
- Another video to compare techniques between the teachers from the different video clips.

Record in their learning log

- Create a checklist that learners can use to help self-monitor interactions with students.
- Compare and contrast instructional practices styles between the two teachers portrayed in the video clips.

Participate in an online discussion

- Describe any surprises or affirmations of your long-held beliefs in connection with gender equity in the classroom.

Part 4: Assessment and Gender Equity in Mathematics

Learners will:

- Identify some of the equity challenges with regard to assessment and with the current testing climate.
- Explore strategies for assessing student learning that are gender-fair.
- Strategize ways for working within the current testing climate while promoting gender-equitable assessment tools.

Read

- "Assessment and Gender Equity in Mathematics." This article discusses the scoring gaps that have been found in standardized math test scores and offers reasons for those gaps and strategies to help overcome them.
- A vignette of one assessment challenge for a classroom teacher.

Activities

- Select a math problem to do with students and observe the ways in which the students approach the problem and engage in the problem solving process.
- Download and use the rubric to help develop ideas for assessing the prior activity.

Participate in an online discussion

- Answer the following question: how would you, assuming the role of the classroom teacher, respond to the school principal and your colleagues regarding issue of gender equitable assessments?

Part 5: Winning Family and Community Support for Mathematics Achievement

Learners will:

- Distinguish the role that families and communities have in promoting girls' and young women's achievements in mathematics.
- Identify strategies for gaining and maintaining support for math achievement.

Read

- “Winning Family and Community Support for Mathematics Achievement.” This article discusses why girls need their families and communities to support their achievements in math, and it provides suggestions for offering that support.
- Read two vignettes about the challenges in engaging families in their students' educational experiences and in helping them see their roles in girls' achievement in mathematics. Analyze the two situations.

View

- The “Parents and Math” video that features a teacher discussing the role of parents in her classroom, and think about the statements made in the video and whether this situation has been typical in their experiences.

Record in the learning log

- Responses to the questions associated with the vignettes.

Participate in an online discussion

- By sharing some ways learners would expand their responses to the situations articulated in the vignettes.

Part 6: Planning Next Steps

Learners will:

- Reflect on the links and overlaps among the topics addressed in this course.
- Apply this learning in the development of a final project that can be used in the classroom.

Read

- “Planning Your Next Steps.” This article discusses the importance of being proactive when working for equitable education in the classroom and provides suggestions for potential next steps.

Participate in an online discussion

- The learner reflects on the material discussed in this course, specifically which strategies will be the easiest/hardest to implement in their classrooms or schools.

Complete a final project



The learner will choose **one** of three possible final projects.

- Final Project A—Prepare an Action Plan (2-3 pages) that incorporates the learning from this course into some "next steps" that build on each other and that you can realistically implement in your classroom. Criteria for the project are:
 - Description of the action to be taken
 - Rationale for the action
 - Plan for building or "growing"
 - Plan for assessment and reflection
- Final Project B—Have another teacher observe your math classroom (if another teacher is unavailable, videotape your class) using the checklist that you created in Session 3 to help you self-monitor your interactions with your students. Write a 1-2 page paper that analyzes the observations and includes any surprises or affirmations, patterns, and ideas for making changes in your teaching practices. Include your checklist with your paper. Note: You may wish to modify your checklist to reflect the knowledge you gained later in the course.
- Final Project C—Write a 2-3 page paper that provides a list of guidelines that will help you look for gender equitable mathematics curricula in your school's or district's next curricula review. Criteria for the project are:
 - Rationale of why the guidelines are important
 - How they will not only enhance the selection of materials, but also impact teaching and assessment practices

Record in the learning log

- A response to the following question: "What one or two ideas will you take from this course that you believe will be of the most use for you in your classroom, and why?"
- Learners will then submit their learning log, along with their final project, to their facilitator using the Digital Drop Box.

Schedule

This course is scheduled to take approximately 15-20 hours to complete readings, activities, video, assignments, reflections and a final project.

Requirements

Learners are expected to:

- Complete all assignments
- Maintain an online journal
- Participate regularly in discussion boards

Evaluation

Pass/fail upon satisfactory completion of assignments and discussion board participation

Materials (hardware, software, plug-ins)

Technical Requirements

- Word processor
- Internet service provider
- E-mail
- TeacherLine required plugins

Academic Dishonesty Policy

To be inserted by university institution only