

Oregon Math Project

Practice Brief: Promoting Equity

Megan Brunner, Elyssa Stoddard & Rebekah Elliott, Oregon State University

What is the Issue?

In education, we often hear the word “equity” used in conversations about programs and in policy. Knowing what is meant by equity and attending to who is served and more importantly who is not served by our programs and policies is complex and not typically central in our discussions. The lack of a shared definition of equity and attention to who is served in policies and programs can result in perpetuating the status quo. This practice brief introduces a commonly used framing of equity in mathematics education and provides ideas for how teachers, administrators, and families can work together to improve instruction towards more equitable ends.

Equity

The inability to predict mathematics achievement and participation based solely on student characteristics such as race, class, ethnicity, sex, beliefs, and proficiency in the dominant language.¹

Why it Matters:

- **Access:** The first step into making schooling more equitable focuses on students’ access to grade level opportunities for learning. Without access to resources and opportunities, students can be positioned from a deficit perspective instead of acknowledging that students will have different needs in the classroom. When planning, enacting, and assessing a lesson, we need to provide equitable access to materials, people, content, and a community that supports the learning of all students. However, providing access to opportunities is not enough.²
- **Achievement:** The definition of equity presented above centers achievement as a key piece for measuring equitable schooling. That is, unless we teach our students in ways that support them to show what they know on assessments that determine their futures as well as empower them to use mathematics as a critical tool in their lives and communities, we have not prepared them to succeed in a society that values mathematics. We need to prepare students to “play the game” in order to “change the game.” This means that we must support students from non-dominant communities’ access to math *and* math achievement so they may pursue STEM and change STEM culture.²
- **Power:** Power dynamics shape teaching and learning mathematics. These dynamics can be seen through questions such as, “whose voice is heard in the classroom?”, “who is able to author mathematical ideas?”, “where is mathematical authority located?”, and even regarding how mathematics is seen as useful by students. Students need to experience their power as mathematical thinkers and do-ers, thus requiring us to decenter our own thinking and center theirs.²
- **Identity:** Studies have shown that students who hold positive mathematical identities are more likely to succeed in math and continue in the field. A linchpin in the development of positive mathematical identities is the classroom learning environment. Supporting students’ development of positive math identities is intentional work that comes through planning, enactment, and assessment of a learning segment. The learning environment must welcome and draw upon students’ cultures, communities, and identities to learn content just as the design of curricular tasks must recognize the valid and valuable³ mathematical activity students bring from their everyday lives.²

Big Questions:

1. How are our expectations of students shaped by biases and perspectives on learning that we bring to the math classroom?
2. Is each and every student receiving a high-quality education with equitable opportunities to participate in learning?
3. How are math classes empowering students to meaningfully participate in their future and community and to see themselves as

In Oregon & Beyond:

- **Escondido Union High School District**¹¹: A common vision of equitable instruction was developed by EUHSD teachers and leaders to guide their work in creating an equitable math program.
- **Conferences**: Many conferences for teachers include sessions specific to equity in math education or are equity-focused as a whole. Opportunities for professional learning include:
 - TODOS
 - Teachers Development Group Leadership Seminar
- **Resources for reflecting on practice**: Teachers can use tools such as the TRU Framework⁸ to critically reflect on their practice, or apps like EQUIP¹⁰ to set goals and capture evidence of teaching.

Future Steps:

- **Set norms for interaction that attend to status issues**: Regularly position students as competent, recognizing their participation in mathematical activity publicly. Ask students to engage in groupworthy tasks, where all members of a group are needed to contribute to the solution. Structuring peer discussions can support deeper connections to the math and build positive classroom relationships.⁴
- **Consider assessment policies used in class**: Provide opportunities for students to revise reasoning and demonstrate understanding in multiple forms over the course of a unit in order to reflect the iterative nature of mathematics.⁵ Utilizing a variety of assessments that integrate student choice and self-assessment can build agency and connect mathematics with student interests.
- **Incorporating questioning into curriculum**: Fore-fronting student thinking and discourse provides a way to meet students where they are and allow *their* ideas to drive discussion. Asking questions that elicit mathematical reasoning allows students opportunities to explain their thinking, learn to question each other's reasoning, and build on each other's ideas.⁶
- **Connect classrooms with the community**: Our students live and interact in complex environments, and we do them a disservice when we expect them to leave their lives at the door. Pose problems around student or community interests and empower your students to analyze scenarios and propose solutions using mathematics as a critical tool.⁷
- **Engage in critical conversations**: Learning how our commitments to equity connect to our instruction is challenging. It requires hard work, critical reflection, and accountability to goals for improvement. It requires reflecting on our biases and the ways they shape instruction. Observing colleagues and reflecting on our instruction can support growth.⁸ Collective, sustained focus across a system is needed to move toward equitable and inclusive mathematics education.⁹

¹Gutiérrez, R. (2002). Enabling the practice of mathematics teachers in context: Toward a new equity research agenda. *Mathematical Thinking and Learning*, 4(2–3), 145–187. https://doi.org/10.1207/S15327833MTL04023_4

²Gutiérrez, R. (2009). Framing equity: Helping students “play the game” and “change the game.” *Teaching for Excellence and Equity in Mathematics*, 1(1), 5–7.

³Moll, L. C., Amanti, C., Neff, D., & Gonzalez, N. (1992). Funds of knowledge for teaching: Using a qualitative approach to connect homes and classrooms. *Theory into Practice*, 31(2), 132–141.

⁴Nasir, N. S., Cabana, C., Shreve, B., Woodbury, E., & Louie, N. (2014). *Mathematics for equity: A framework for successful practice*. Teachers College Press.

⁵Kalinec-Craig, C. (2017). The rights of the learner: A framework for promoting equity through formative assessment in mathematics education. *Democracy & Education*, 25(2), 1–11.

⁶Staples, M., & Colonis, M. M. (2007). Making the most of mathematical discussions. *Mathematics Teacher*, 101(4), 257–261.

⁷Gutstein, E. (2016). “Our issues, our people—math as our weapon”: Critical mathematics in a Chicago neighborhood high school. *Journal for Research in Mathematics Education*, 47(5), 454–504.

⁸Schoenfeld, A. H., & The Teaching for Robust Understanding Project. (2016). *The Teaching for Robust Understanding (TRU) observation guide for mathematics: A tool for teachers, coaches, administrators, and professional learning communities*. Retrieved from <http://truframework.org>

⁹Gutiérrez, R. (2016). Strategies for creative insubordination in mathematics teaching. *Teaching for Excellence and Equity in Mathematics*, 7(1), 52–60.

¹⁰EQUIP App. (n.d.). Retrieved October 9, 2019, from <https://www.equip.ninja/>

¹¹https://www.nctm.org/uploadedFiles/Standards_and_Positions/Escondido-Union-High-School-A-Systemic-Approach-to-Change.pdf

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