Challenging Spaces of Marginality

Challenging spaces of marginality refers to the practice of identifying, understanding, and actively addressing the educational spaces—both physical and metaphorical—where certain groups of students are not supported to flourish mathematically. Marginalized spaces are challenged when each and every student is given opportunities to succeed on a variety of cognitively demanding mathematical tasks (gutiérrez, 2008). This approach has been shown to improve standardized test scores as well as classroom performance, as students engage more deeply with the material (cummins, 2001).

The 5 Equity-Based Practices

1. Going Deep With Mathematics
2. Leveraging Multiple Mathematical Competencies
3. Affirming Learners' Mathematical Identities
4. **Challenging Spaces of Marginality**
5. Drawing on Multiple Resources of Knowledge

Aguirre, et all, 2013

The "How!"

- **Recognition of Marginality:** Educators are encouraged to identify how and where marginalization occurs within their classrooms. This could be through tracking who participates in discussions, whose ideas are valued, or how different students relate to the content and processes of mathematics.
- **Curriculum and Instructional Redesign:** Adjusting the curriculum to reflect a broader spectrum of cultural histories and contributions in mathematics. Instruction should also be adapted to incorporate various learning modalities and to challenge the traditional norms and practices that may exclude or marginalize certain groups. Providing more support for marginalized students to access advanced math courses is also recommended.
- **Creating Dialogues:** Engaging students and faculty in conversations about bias, identity, and power in mathematics education. This helps raise awareness and can lead to more conscious efforts to create an inclusive classroom environment.
- **Professional Development:** Training for educators that focuses on equity, inclusion, and culturally responsive pedagogy to better equip them with the skills needed to challenge spaces of marginality.

What Does This Look Like?

- Centers student authentic experiences and knowledge as legitimate intellectual spaces for investigation of mathematical ideas.
- Positions students as sources of expertise for solving complex mathematical problems and generating math-based questions to probe a specific issue or situation.
- Distributes mathematics authority and presents it as interconnected among students, teacher and text.
- Encourages student-to-student interaction and broad-based participation.
- Challenging Spaces of Marginality Quick Look.

Planning with Your PLC

Overarching questions to consider:

- Do you have predefined notions about which students will excel or struggle in math?
- What can you and your school do to improve the number of marginalized students that succeed in mathematics?

While planning instruction, consider:

- How do I connect my students' knowledge (in school and outside school) with the main math concept of this lesson?

Mathematics educators' "daily conversations support belief in a racial hierarchy of mathematical ability. Stop a random stranger on the street and ask, 'Who is good at mathematics? Who is not?'" Answers will likely reveal a racial sorting.

–Danny Martin (2009)

Research suggests that alignment between the school and the community culture and educator engagement with the community can all impact academic performance of Native students.

–William Demmert (2001)

Rather than focusing on gaps in achievement, test scores, or other opportunities, the Opportunity Gap Framework shepherds educators into reflective spaces where they consider inputs- mechanisms, practices, policies, and experiences that influence students' opportunities to learn.

–Richard Milner (2021)

How Challenging Spaces of Marginality Is Connected to Equity

Challenging Spaces of Marginality in math education is a powerful tool for promoting equity in the classroom. It is deeply connected to the pursuit of educational equity, which emphasizes fairness and inclusiveness to ensure that all students have equal opportunities for academic success, irrespective of their backgrounds, identities, or socio- economic statuses. Traditionally, math education overlooks the experiences and cultural knowledge of students from marginalized backgrounds. This practice disrupts that by dismantling **deficit thinking** and **centering student identities.** Key practices such as inclusive participation and representation in classroom discussions and curricular content help make all students feel seen, heard, and valued, combating **systemic biases** and stereotypes that can limit opportunities for those from marginalized groups.

By evaluating and adapting teaching materials and practices to be culturally relevant and diverse, educators ensure that all students can find relatability and relevance in their learning experiences. This inclusivity boosts engagement and connection with the subject matter, which is vital for equitable educational outcomes. In an equitable classroom, **feedback** is geared towards growth and improvement rather than punishment or embarrassment. Treating mistakes as learning opportunities promotes a growth mindset, where students are encouraged to take risks and learn from their experiences without fear of judgment, which is particularly important for students

Equity extends beyond the classroom and includes **families and communities.** Engaging with parents and community members as partners in education fosters a supportive and inclusive environment that enhances student success. This also ensures that decisions and practices reflect the values and needs of the community, contributing to more personalized and effective educational strategies. Finally, regularly evaluating the effectiveness of equity-focused initiatives ensures that the strategies implemented are actually working to challenge spaces of marginality. This ***continuous assessment and adjustment*** are crucial to maintaining and enhancing equity in education.

Resources that Can Be Used to Challenge Spaces of Marginality:

- Social Justice Math: https://francesharper.com/social-justice-math/
- Bias and the Mathematics Classroom (NCSM): https://www.mathedleadership.org/transformational-conversations/
- Culturally relevant leadership in mathematics education (NCSM): https://www.mathedleadership.org/ncsm-essential-actions-series/
- Disrupting Injustice: Navigating Critical Moments in the Classroom (NCTM): https://www.nctm.org/Store/Products/Disrupting-Injustice-- Navigating-Critical-Moments-in-the-Classroom/
- *The Impact of Identity in K-8 Mathematics: Rethinking Equity-Based Practices* (Aguirre et al., 2013).
- The Opportunity Myth https://opportunitymyth.tntp.org/
- Champion a student for the year (nc2ml.org 6-8 resources)

Want to Learn More?

Cummins, J. (2001). Empowering minority students: A framework for intervention. Harvard Educational Review, 71(4), 649-675.

Gutiérrez, R. (2008). A "gap-gazing" fetish in mathematics education? Problematizing research on the achievement gap. Journal for Research in Mathematics Education, 39(4), 357-364.

Martin, D. B. (2009). In my opinion: Does race matter?. Teaching Children Mathematics, 16(3), 134-139.

Milner, H. R. (2012). *Beyond a test score: Explaining opportunity gaps in educational practice Journal of Black Studies,* 43(6) 693–718.

Milner, H. R. (2021). *Start where you are, but don't stay there: Understanding diversity, opportunity gaps, and teaching in today's classrooms.* Harvard Education Press.

When we focus on achievement gaps, culturally diverse students can be positioned through conceptual deficits in the minds, practices, and designs of analysts such as researchers, theorists, and practitioners; consequently, consumers of these analyses may adopt deficit perceptions and transfer them into their practices with students.

–Richard Milner (2020)

Adapted from: Aguirre, J., Mayfield-Ingram, K., & Bernard Martin, D. (2013). The Impact of Identity in K-8 Mathematics. NCTM. https://www.nctm.org/Store/Products/The-Impact-of-Identity-in-K-8-Mathematics-Rethinking-Equity-Based-Practices