

Disrupting normativity in mathematics education: Meeting queer students at the intersection of their queer and mathematics identities

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In western mathematics and mathematics education, normative structures serve to reinforce hierarchies of oppression along lines of race, gender identity, class, dis/ability, and sexual orientation. This symposium aims to create a space in which participants can discuss and interrogate, from an intersectional perspective, the normative structures of mathematics and mathematics education, specifically those that reinforce heteronormativity and gender-normativity and to discuss ways of re/humanizing mathematics for LGBTQ+ people.

Aims of the symposium

This symposium aims to create a space in which participants can discuss and interrogate the hetero- and gender-normative structures of mathematics that serve to dehumanize mathematics for LGBTQ+ people. We will discuss research on queer identity in mathematics teaching and learning, queer theory as a means to re/humanize mathematics for LGBTQ+ students, and implications for mathematics pedagogy.

Rationale

With the dawn of the 21st century, the field of mathematics education began experiencing a shift in perspective—embracing the idea that the teaching and learning of mathematics, previously regarded as neutral, is influenced by political and sociocultural factors (Gutiérrez, 2013). This shift in perspective has led many scholars to investigate how race, sex assigned at birth, dis/ability and other identities impact mathematics teaching and learning. More often than not, the findings of such studies suggest that mathematics teaching and learning reproduce normative social structures that serve to sustain oppressive hierarchies (Leyva, 2017; Mendick, 2006). These normative structures often lead to dehumanizing mathematics experiences for students from traditionally marginalized groups (Goffney, Gutiérrez, & Boston, 2018; Tan et al., 2019).

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In Western schools, queer students are particularly vulnerable to dehumanizing experiences in educational spaces (Watson & Miller, 2012), given the politicization of their identities by religious groups and the experiences of harassment or assault that queer students report in K-12 and higher education institutions. Over the last decade, GLSEN has consistently reported that over 85% of LGBTQ+ students in U.S. grades K-12 have been harassed or assaulted at school (Kosciw et al., 2020). Such dehumanizing experiences continue for queer students in institutions of higher education, where they are significantly more likely than their non-queer peers to report experiences of harassment, discrimination, and feelings of being unsafe at their institution (Greathouse et al., 2018). Around the world, in the mathematics classroom, such experiences come in a variety of forms, from the complete erasure of LGBTQ+ people and experiences in textbook problems (Esmonde, 2011; Waid, 2020) to stereotypes pertaining to masculinity, femininity, and what it means to be “good at math” (Mendick, 2006). Such dehumanizing experiences may explain why, for example, queer students are less likely to complete Algebra II than those that do not identify as queer (Whipple, 2018).

At the time of writing this proposal (less than 70 days into the year), 2021 has seen the murder of at least 10 transgender or gender nonconforming people (at least half of whom were Black transgender women) in the U.S. (Human Rights Campaign, 2021a) and there are 147 anti-LGBTQ+ measures (73 of which target transgender people specifically) being considered by U.S. state legislatures (Human Rights Campaign, 2021b). Considering the results of GLSEN’s National Climate Surveys (e.g., Kosciw et al., 2020) and Greathouse et al.’s (2018) study of the experiences of queer people at institutions of higher education, it is clear to us that these hate-filled acts of violence against queer people are a symptom of a larger problem of homo- and transphobia that is reinforced by the normative structures of western society—normative structures that are reproduced in our mathematics classrooms. We believe, however, that this can change. Such change would require that mathematics educators begin to identify hetero- and gender-normative structures in mathematics education and develop tools to interrogate and disrupt those structures.

In this symposium we invite participants to envision a new, rehumanized form of mathematics, one that honors queer identity, knowledge, and experience. We will provide educators a lens through which to understand the intersection of queer and mathematical identity, namely through the use of the Queer Identity Intersection (QII) of Mathematics Education (Moore, 2020). The QII necessitates critiques of the ideologies of mathematics education and discussions of how they collide with students’ subjectivities—gendered, sexualized, and otherwise. Using this lens, we will then explore the following questions: What hetero- and gender-normative structures are present in mathematics education? What other normative structures exist in mathematics education? How do we interrogate and disrupt those normative structures in ways that honor and re/humanize mathematics (and the larger schooling environment) for queer students, educators, and students from queer families?

Symposium structure

The symposium will begin with a discussion of the mathematics classroom as a potentially dehumanizing space for queer students (building upon the literature presented earlier in this

proposal). This will be followed by an exploration of the intersection between mathematical identity and queer identity, using Moore's (2020) Queer Identity Intersection (QII) of Mathematics Education. To begin thinking about how one might navigate the "road" of Queer Identity, participants will be invited to identify (in small groups) hetero- and gender-normative structures present in mathematics education. Presenters will then discuss how they have worked to enact critical/queer pedagogies in their own teaching to disrupt those normative structures and re/humanize mathematics for queer students in K-12 public and independent school settings in the US, as well as with graduate and undergraduate students pursuing degrees in mathematics and mathematics education.

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