Overcoming Barriers: De-Tracking to Teach for Social Justice

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Abstract

How do we overcome tracking in mathematics to actualize the goals of teaching for social justice? Tracking is a racist educational structure that puts limits on the effectiveness of teaching for social justice. This essay presents arguments for de-tracking with explanation of how tracking negatively impacts Black and Latinx students. Readers will learn about schools and districts that have de-tracked students juxtaposed with the barriers that keep most schools from dismantling tracking. This essay calls upon schools and researchers to further investigate locally why schools do not work through these barriers to spark action and eliminate tracking.

Introduction

Calls for equitable structures in mathematics education recur because actions have not been taken systemically to remove long-standing barriers. Structures such as tracking impede progress toward equitable learning opportunities for students. Specifically, tracking and goals of teaching for social justice have been in opposition for decades. In this essay, I present the argument for de-tracking, or shifting to heterogenous ability grouping, starting in middle schools which would better situate teachers to implement equitable practices without the limits tracking creates. Then, I discuss that policy-makers and educators must become aware of why schools and districts choose not to de-track students in mathematics and realize that tracking can be dismantled. By considering de-tracking barriers and examples of de-tracking, my goal is for policy-makers and educators to take action to eliminate barriers and move toward teaching for social justice in de-tracked systems.

Problematic Nature of Tracking

For over a century, tracking students by abilities, most often determined by standardized testing (Ellis & Berry, 2005), bestows advantages to some while withholding advantages from others. *Catalyzing Change* (NCTM, 2020) made a commanding recommendation for de-tracking mathematics classes citing significant research (Oaks, 2005; Loveless 1998, 1999; Boaler, 2006, 2011) on the negative impacts and racist nature of tracking, reinforcing that inequities created and perpetuated by tracking are well-documented (Oakes, 2005, 1990, Boaler, 1997, Loveless, 1998, Martin, 2003). As Oakes (2005) attests, "poor and minority students are most likely to be placed at the lowest levels of the schools' sorting system" (p. 67) thus feeding systemic racism in mathematics education.

Mathematics is the most tracked subject in K-12 schooling (Loveless, 2013). Tracked classes purposefully separate students, often based on race and socioeconomic status (Boaler, 1997), and keep students of varying abilities apart. *Everybody Counts* showcased tracking as a force creating racial and ethnic disparities for students: "differential opportunities to learn imposed by twelve years of multiple tracked classes produce vastly different evidence of mathematical power" (National Research Council, 1989, p. 21). The report went further by stating that Black and Latinx[1] students will be left in an unending cycle of 'mathematical poverty' if structures and systems do not change (p. 21).

De-tracking is supported by research yet, schools and districts retain tracking policies in mathematics. Over decades, tracking structures have become the status quo. Though researchers such as Oakes and organizations such as NCTM pushed against tracking through their writing and policy recommendations, schools have not made significant shifts toward de-tracking. Therefore, NCTM, for example, moved toward recommending reforms that would benefit all

[1] In this essay, I choose to use Black and Latinx throughout although cited works may use other terms such as African American or Hispanic.

students (NCTM, 1989). Such reform movements, e.g. *Mathematics for All*, fostered conceptual learning in which students construct their own understanding of mathematical ideas as opposed to direct instruction from teachers. These efforts promoted mathematics teaching practices serving all students but the reforms were independent of tracking. Thus, tracking continued and limited reforms' efficacy to achieve equity in students' mathematics learning.

Impacts of Tracking on Black and Latinx Student Success

Tracking differentially impacts Black and Latinx students and creates inequitable access to quality instruction and high-cognitive demand learning. For schools serving mostly Black and Latinx students, to close the achievement gap, focus remains on raising test scores rather than high-quality mathematics instruction (Adamson & Darling-Hammond, 2014). The literature on inequitibility is extensive covering three areas of negative impacts: mindsets, opportunities to learn, and depth of engagement.

Black and Latinx students in lower tracks develop negative beliefs in their own abilities (Boaler & Greeno, 2000). Within tracked systems, there is a hierarchy that fuels fixed mindsets which is often detrimental to learning because students believe their intelligence cannot change (Dweck, 2006). Mindsets are a component of students' identities, how they see themselves as doers of mathematics (Boaler & Dweck, 2016). Growth mindsets and positive identities need to be fostered in students, but tracking acts as a gatekeeper for positive mathematical identities reserving positive identities for those deemed more intelligent, often based on testing (Gutiérrez, 2013). Further, tracking systems tend to reward students in the highest tracks and feed their positive mathematical identities while denigrating students in lower tracks (Oakes, 1990).

Placement in lower mathematics tracks becomes predictive of students' achievement through fewer opportunities to learn. In one study, even when students showed greater mathematical abilities but were placed in lower tracked classes, their achievement levels decreased as they succumbed to the lower expectations (Stiff et al., 2011). Tracking positions Black and Latinx students to assume they are less mathematically capable and once placed, their pathways will unlikely change (Ellis, 2008). As a result, Black and Latinx students will less likely enroll or achieve in algebra in the eighth grade (McCoy, 2005; Paul, 2005; Morton & Riegle-Crumb, 2019) leading to disproportionate access and enrollment in higher level courses. Specifically, Black students' odds of enrolling in eighth grade algebra is statistically significantly lower than the odds for other students (Spielhagen, 2006). Such immobility between tracks sustains racial disparities in opportunities to learn and reproduces inequities, especially once students enter middle school (Morton & Riegle-Crumb, 2019).

In lower tracks, mathematics tasks have limited depth of engagement as learning is more likely rote without sociocultural considerations. Therefore, Black and Latinx students will often be taught skills through repetition, devoid of anything relevant to their lives (Civil, 2002). There is an "exclusive focus on basic skills, low expectations, and the least qualified teachers" (Heubert & Robert, 1999, p. 282) in lower tracks. Further, Black and Latinx students are twice as likely to have teachers with three years or less teaching experience (Flores, 2007). If students in lower tracks need the most help to deepen understanding, it seems counterintuitive to more often assign them to teachers with less experience. Instead of access to experienced teachers and challenging, relevant tasks, students in lower tracks more likely receive surface-level instruction from less experienced teachers.

Within tracking, Black and Latinx students do not fully receive the best practices intended to foster positive mindsets nor those which improve learning experiences and opportunities for all students. Organizations like NCTM recommend de-tracking while at the same time promoting teaching practices to benefit all students. However, practices associated with teaching for social justice do not fully reach students in lower tracks. How do we overcome tracking to truly teach for social justice?

Competing with Limits: Teaching for Social Justice

Though not easily defined, teaching for social justice has numerous identifiable characteristics all situated within an equity lens. Teaching for social justice challenges teachers to go beyond superficial appreciation for diversity; such teaching is "meaningful, dynamic, and healing" (Lee, 2005, p. 32). Social justice teaching aims to

create safe experiences, both physical and psychological, for students to feel recognized and respected, and for equitably distributed resources (Bell, 1997). Students are central to instruction and part of the "solution to injustice" (Gutstein, 2003, p. 39) and therefore, personalized learning practices are inherent in teaching for social justice since it involves commitment to creating learning experiences tailored to students' needs (Ferguson & Ralph, 2001).

Nevertheless, the situations created by tracking compete with the principles of teaching for social justice. Tracking perpetuates beliefs that some students are lacking; some students have deficits that educators can somehow fix (Civil, 2002, p. 136) whereas teaching for social justice is asset-based. Specifically, teachers focus on knowledge and experiences students bring to the classroom and how students' perspectives can help the class's collective learning. De-tracking helps dismantle deficit-view approaches that work against Black and Latinx students' success in mathematics since with de-tracking, learning trajectories are not predetermined and teaching is grounded in students' assets.

Assumptions embedded in tracking affect teachers' abilities to teach for social justice effectively. In one study, Yurekli et al. (2020) determined that teacher perceptions can predict their self-reported use of practices that promote making connections between mathematical ideas, a critical component of conceptual understanding. Yurekli et al. (2020) showed teacher perceptions about students' backgrounds can affect how teachers believe students can make connections between mathematical ideas and the frequency in which teachers explicitly enact practices to promote making connections. Specifically, students' backgrounds can impact teachers' practices based on perception. As discussed earlier, deficit views about Black and Latinx students exist in tracked mathematics classrooms. Applying the results from Yurekli et al. (2020), it is reasonable to deduce that tracking may limit teachers from enacting certain social justice teaching practices alongside negative perceptions about Black and Latinx students.

De-tracked classes give more autonomy to teachers to influence student outcomes. When educators have autonomy, they can consider the injustices that exist in mathematics education and determine how to enact change for the purpose of social justice (Freire et al., 2018). For example, when teachers use constructive, culturally responsive, and collaborative methods in de-tracked mathematics classrooms, they can help students' develop positive identities and increase student success (Boaler, 2006). However, tracking still permeates mathematics education. To actualize benefits for Black and Latinx students in particular, it is necessary to explore barriers to de-tracking to take steps toward removing them.

Understanding Barriers to De-tracking

Teaching for social justice aims to foster equity in mathematics which occurs when student characteristics, such as race or ethnicity, no longer predict student outcomes and every student has the individualized support they need to excel (NCTM, 2014). Understanding why tracking persists and how it impedes teaching for social justice will further develop conversations about dismantling tracking. In 1985, Jeannie Oakes launched perhaps the strongest attack on tracking in mathematics in *Keeping Track: How Schools Structure Inequality*. Oakes described the tensions between tracking and students' success; tracking subverts equality (p. 4). Alarmingly, no systemic changes occurred. Since tracking has become a standard, educators and parents have and will likely continue to push back against de-tracking (Loveless, 1998) and shifting away from tracking will be complex.

De-tracking faces three overarching barriers. First, most often local educators or administrators make tracking decisions. While some states, like California and Massachusetts, discouraged tracking, they did not order de-tracking (Loveless, 1999). With little guidance or support from state or national departments of education to implement systematic changes to de-track, student placement in tracks is inconsistent within schools and between schools (Oakes, 2005). Therefore, many schools see de-tracking as a "gamble" (Loveless, 1999, p. 155). No governing bodies mandate de-tracking and the decision rests on individual districts or schools making systemic change more difficult.

Next, opponents perceive de-tracking as diluting learning opportunities for high-achieving students, despite a lack of evidence to support this claim (Oakes, 2005). As seen in a study of Massachusetts schools, de-tracking has mostly taken place in urban and rural schools as well as low-performing schools as a reform to reduce educational harm to students (Loveless, 1999).

However, affluent, suburban, high-performing schools more often reject de-tracking. Such opponents push against de-tracking because they believe it impedes progress for advanced students (Loveless, 1999, 2013). So, which students are more important? This question exemplifies the systemic power dynamics shaping debates over tracking that ultimately keep it in place because advocates for high-performing schools and students most often prevail.

Last, de-tracking necessitates different pedagogical choices, requiring extensive training for teachers. Since most teachers have tracked classes, they resist change and believe "the instructional task is simplified when the range of student differences in class groupings is narrowed" (Oakes, 2005, p. 207) and it is too difficult to teach heterogenous mathematics classes (Loveless 1999, 2013). The ease of instruction and comfort in continuing tracking are barriers to de-tracking. Essentially, de-tracking has not been widely adopted because it appears difficult to enact.

De-tracking is Possible

Despite the barriers to de-tracking, some schools and districts have successfully implemented de-tracking. In 1985, The Algebra Project eliminated ability grouping in Cambridge schools to bring algebra to all students in seventh and eighth grade through small group and individualized instruction (Moses et al., 1989). Moses and colleagues contended that opportunities to access algebra in middle school would increase confidence in and lay the groundwork for students to take higher level mathematics courses. Middle school students from the project's first cohort all went on to take mathematics courses at grade level or above. The Algebra Project's success was due to comprehensive changes in the way students learned mathematics (not focused on innate abilities) and assumptions about who can learn mathematics, while creating a culture beyond the classroom that supported students' learning. The program's success hinged on transformation of beliefs; acknowledging that tracking was detrimental for Black students' success and the necessity to change school policy and culture.

One district in New York which used an "acceleration for all" approach (Burris et al., 2006) de-tracked with positive results. This district's de-tracking was part of a comprehensive plan to eliminate tracking as well as implement structural and instructional changes that would support student learning, such as common planning periods for teachers and revised curricula. In this particular district, all students received instruction based on what the highest mathematics levels would have received. All of the Black and Latinx students (previously labeled high-achieving in tracked courses) in the de-tracked cohorts continued to complete a higher-level course in contrast to just 69% of similar students in tracked classes before implementing "acceleration for all."

In another example, teachers at Railside school in California employed equitable teaching practices through *complex instruction* (Cohen, 1994; Cohen & Lotan, 1997): multidimensional classrooms, student roles, assigning competence, student responsibility, high expectations, effort over ability, and learning practices (Boaler & Staples, 2008). Notably, staff at Railside school worked collaboratively and had strong support from school leadership on equity-focused curricula and practices. Such multi-level and pervasive commitment to de-tracking contributed to its success. Students at Railside school not only academically outperformed students from tracked mathematics classes, but they reported having higher self-belief and persistence. A significant reason for this result was the gains made by those students who would have otherwise been placed in lower mathematics tracks (Boaler, 2011).

These examples reinforce that when schools de-track mathematics classes, students who have been placed in lower tracks can gain more support, see higher levels of achievement, and more likely pursue higher-level math classes. Currently, schools like Evanston Township High school have created a process of de-tracking starting in ninth grade and saw the percentage of Black and Latinx students in Advance Placement classes dramatically increase in the first three years of de-tracking (Bavis et al., 2015). The process of de-tracking may seem cumbersome because it requires undoing decades of the ill-effects of tracking, particularly for Black and Latinx students. However, de-tracking is more equitable and can create environments more conducive to teaching for social justice through which we stop assuming that Black and Latinx students are inferior with regard to mathematics learning (Martin, 2009). It is imperative to understand more about implementing de-

tracking instead of defaulting to tracked ability grouping.

Benefits of Teaching for Social Justice in De-tracked Classes

In de-tracked classes, teachers must maintain rigor and focus on high-cognitive demand content. Teachers can release authority to students in order to normalize students' success in mathematics, which is particularly productive for Black girls (Joseph et al., 2019). Such practices will foster creativity and provide choice in how students engagement in mathematics. One way to maintain rigor is to encourage justification in mathematical tasks and discourse to deepen conceptual understanding. Students will likely gain agency (sense that they can do and create mathematics) when teachers expect them to justify their mathematics (Bieda & Staples, 2020).

Especially when teaching for social justice in middle school mathematics, the teacher's role is to allow for creativity and discovery as well as provide opportunities for divergent thinking. Through open-ended questions aligned with equity principles in *This We Believe* instruction can be responsive, challenging, empowering, equitable and engaging (Bishop & Harrison, 2021, p. 8). Building awareness around how to achieve equity for all students through teaching for social justice in middle school, particularly for Black students, is crucial to understanding how students access higher-level mathematics (Berry, 2008). Throughout lessons, teachers can encourage the use of different language, allow flexibility in how students respond, and value originality (Luria et al., 2017). Particularly for Black and Latinx students, teachers serve students when they honor students' unique funds of knowledge; household as well as mathematical- and community-based knowledge (Moll et al., 1992, Civil, 2007). Open-ended problems provide opportunities for students to draw from experiences, utilize the assets embedded in cultural differences, and be clever with mathematical ideas. For students who have been held back by tracking, more engaging, contextually-relevant open content help students see themselves within mathematics (Wilson et al., 2019). Subsequently, students become motivated to do mathematics rather than positioning themselves as just another member of a class (Dysarz, 2018, p. 16). When teachers mobilize students' diverse funds of knowledge as resources, they create more relevant mathematical tasks for all students.

Teaching for social justice nurtures class communities where all students are mathematicians, feeling safe taking learning risks. It promotes teacher empathy and genuine connection-making with students and families to understand more about students' lives, becoming partners to share students' burdens and forge through academic and personal challenges (Maloney & Matthews, 2020). When teachers showcase mathematics as a vehicle for personal growth, they make it about empowering Black and Latinx students to use mathematics to resist inequities (Maloney & Matthews, 2020). When schools remove the limits tracking creates, teaching for social justice may catalyze better outcomes for Black and Latinx students.

Conclusion

Tracking maintains a troubling racist mathematics education structure which limits learning for Black and Latinx students. When schools maintain tracking, they are complicit in the racism tracking perpetuates and do not allow Black and Latinx students to thrive. The negative effects of tracking can only fully be dismantled by eliminating the policy. If schools retain tracking, they do so at the educational and social expense of Black and Latinx students (Oakes, 1985, p. 14). Though scholars and organizations continue to push for more equitable teaching practices, until schools dissolve tracking, the goals of teaching for social justice can never be fully reached.

Then, why do districts and schools continue to track students? The barriers to de-tracking are strong and controversial so schools cannot de-track without extensive planning. The weight of the decision to de-track is heavy for local decision-makers. Widespread, immediate de-tracking may not be appropriate because impacts will vary across schools. Since the decision rests locally, further research is needed to examine why local school officials retain tracking despite decades of research supporting de-tracking. What are the most formidable barriers to de-tracking at each school? What are the local impacts of dismantling tracking? Research is needed to inform school officials about how tracking affects their student population and the dynamics in their communities that prevent de-tracking. Better understanding of local barriers can move schools

to create plans for eliminating barriers in middle school and take action toward de-tracking before increased immobility in high school courses. Potentially, local changes can accumulate to a systemic movement for de-tracking where teachers can work collaboratively to enact aforementioned equitable practices such as the use of open-ended tasks and release of authority to students. Teaching without the limits of tracking provides a clearer path for mathematics teachers to teach for social justice and amplifies mathematics education opportunities for Black and Latinx students that have not been accessible for decades.

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