Additional Information on SFUSD Mathematics Efforts

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The San Francisco detracking story began implementation in 2014–2015, with a new district core curriculum, heterogeneous classes, and increased professional learning. We have endured a COVID-19 pandemic, societal inequities, changes in district leadership, teacher turnover, a teacher shortage, and much more. SFUSD's detracking policy and math program have led to numerous conversations and challenges. The views that have been expressed have a particular narrative and goal that undermine the detracking policy and SFUSD's math program. This paper provides additional information to our previous paper, "**A Case Study in Catalyzing Change: Work to End Tracking and Offer Four Years of Meaningful Math Instruction**" (Hull Barnes and Torres 2019) and adds new context.

Additional Background

In the early 2000s, California began a state-wide effort to minimize barriers to Algebra 1 in the eighth grade for underrepresented students through the Algebra for All movement. Prior to 2011, SFUSD students were placed by various methods into either an eighth-grade General Math course or an Algebra 1 course aligned to the 1997 CA Mathematics Content Standards. In SFUSD eighth-grade students from 2008–2010 who identified as Black or Latine, about 80%, were in the General Math course, with only about 20% being able to take Algebra 1, compared to about 45% of students identified as Asian or white being in the General Math course with about 55% of them being in Algebra 1.

While SFUSD participated in the Algebra for All effort from 2011–2013, tracking students in mathematics courses still existed in some middle schools with additional courses such as Algebra 1 Honors, and in a few cases, Geometry courses were also offered. While a few high schools worked to minimize tracking in ninth grade, some high schools further exacerbated tracking by offering up to five tracks for entering freshmen (e.g. Algebra 1 with fewer standards, Algebra 1, Algebra 1 Honors, Geometry, Geometry Honors).

With the Common Core State Standards in Mathematics (CCSSM) came a new alignment of K–12 mathematics content, which gave schools and districts new courses, including Common Core Math 8 and Common Core Algebra 1, both different from the previous General Math and Algebra 1 courses. The SFUSD detracking policy was developed to address the new standards and new courses, the high failure rate in the previous eighth-grade Algebra 1, and the disproportionate impact on Black and brown students, including the extreme tracking at some of our middle and high schools.

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Making Sense of What Has Happened Since the Detracking Policy

More Details of SFUSD Data Compiled by SFUSD

Compiling data is difficult and complex work. Over the years, the SFUSD Math team worked closely alongside the SFUSD research and assessment office to unpack data. This includes asking questions to ensure all students are accounted for, including credit recovery classes, and deciding when the best time of year is to collect data. Therefore, we, the authors, stand by our data, which tells part of the SFUSD story.

The SFUSD graduates in 2018, compared to 2019, dropped their Algebra 1 repeat rates from 40% to 8%. For the class of 2018 and prior, policy and practice only allowed students to enroll in Geometry as a 9th grader if they scored proficient in the CA State Standardized test, independent of a student passing the eighth-grade Algebra 1 course. With the detracking policy adopted, the class of 2019 was the first class to not have these conditions as a practice for ninth grade placement, giving a one-time dramatic decrease in Algebra 1 repeat rates.

Independent Data Study of SFUSD Policy

Since SFUSD compiled data, there has been an independent study by Huffaker, Novicoff, and Dee (2023), out of Stanford University, which examines advanced course taking before and after the detracking policy was implemented through cohorts of students. This study has a broader data set that provides data of student cohorts from 2016–2021. The report focuses on a one-year change using the cohort classes of 2018 (the last class attending high school for four years under the previous policy) and 2019 (the first class that started ninth grade in heterogeneous classes). Note: The differences in data between this Stanford study and SFUSD's reporting are the students that were included in the reporting. SFUSD accounted for all students that enrolled in math classes for *that particular year* while the Stanford study was based on the total number of students enrolled by their *graduation date cohort.*

Educational change takes time, so we would like to focus on three years of the data they provide, beginning with the last cohort that was a part of the pre-detracking policy (2018) compared to the last year of the Stanford data (2021). The data trend of Math Course-Taking Patterns of SFUSD shows that for advanced math courses (courses beyond Algebra 2), almost all cohorts increased their percentages of students enrolled in these courses from 2018 to 2021 (Huffaker, Novicoff, and Dee 2023, Table A2):

- Precalculus (including the SFUSD Algebra 2 + Precalculus compression course) from 53.21% to 54.31%,
- Probability and Statistics from 12.10% to 16.76%
- AP Statistics from 14.43% to 18.86%
- AP Calculus from 27.90% to 26.09%.
- AP Math courses from 37.41% to 37.34%.

This consistency shows that students are accessing more advanced math coursework overall, calling into question any claims that these policy changes kept

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students out of STEM majors. Yet, after these three years, we still see significant percentage differences in taking advanced math courses for our Black and Brown students.

Enacting policies and new practices, especially complex ones, including efforts to detrack and increase access to higher-level mathematics, takes significant time and effort to fully implement. Clearly, we need more time to impact the decades-long reality and systemic racism across our school systems, and society. We acknowledge that there is still much more work to do.

Current Climate

A district leadership focused on equity is essential to bring about change. The SFUSD Board of Education hired a new superintendent who charged multiple groups to find possible ways to bring Algebra 1 into the middle grades. On February 13, 2024, SFUSD's Board of Education approved a new **secondary course sequence policy,** to begin with a 2-year pilot program of three options for Algebra 1 in middle school and full implementation by 2026–27. These three options are:

1) Algebra for All: all students take Math 6 in sixth grade, Math 7 in seventh grade, skip Math 8, and take Algebra 1 in eighth grade + Math 8 Support Lab (undefined)

2) Readiness or Interest: all students take Math 6 and Math 7, and eighth-grade students either take Math 8 or a compressed Math 8 and Algebra 1

3) Additional Math Period: all students take Math 6 and Math 7, and eighth-grade students take Math 8 with an option to take a concurrent Algebra 1 course

We, the authors of this paper, do not agree with these options. Prior to implementing the current detracked policy, we spent close to a year investigating acceleration in middle grades and their impacts on all students, and we will outline our concerns below.

The SFUSD's new policy has Guiding Principles for Math Pathways, one of which is Equitable Representation, states:

- Math policy/pathways should promote *equitable representation* of students and mirror the demographics of the district across race, gender, language, economics, and IEP status.
- Math pathways should reduce the possibility of *tracking* students in math and other disciplines while also promoting successful completion.

We believe that an equity principle should do more than "promote" equitable representation of students." A principle should strive to *create* equitable representation for all students in all classes and not settle for the status quo. We believe that every one of our students are mathematically brilliant. When someone simply "promotes" something, they are NOT taking the responsibility for making this happen. We know our current policy has taken strides toward more student success in mathematics while simultaneously taking responsibility

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that we have not yet fully accomplished equitable representation and success for all students in a rigorous fourth year math course that provides a path to post-secondary success.

We believe that a principle stating to "reduce" the possibility of tracking students" allows for a system to enable tracking. Tracking, where groups of students are segregated into different classes, often by race, language, and other characteristics, is unacceptable and thus voids the idea of ensuring there is equitable representation in all classes. This second bullet, coupled with the first, essentially permits SFUSD to track without consequences.

There are significant equity issues when schools offer acceleration options in middle school related to finding a way to condense the standards from sixth through ninth grade into less time and the segregation of students in classes. The Common Core State Standards in Mathematics have a purposeful progression of content that builds on one another. Some teachers, sites, or districts might decide to skip certain content to fit the new high school standards in middle grades. Skipping intentionally foundational content could be a system allowing students to skip Math 8 to reach Algebra 1, teachers skipping particular standards, or teachers rushing through a mathematical topic in a surface and procedural way. These choices will leave students confused, unprepared for future content, and missing content such as geometry or statistics that will be useful in the real world. Ultimately, all of these remove time for sense making and for students to find the love of mathematics, leading fewer students to choose STEM careers. Rather than skipping content, schools might consider increasing the math instructional time in middle school. Schools have to consider the courses students will no longer have access to, including electives, language, and other content areas. For students who have not had much math success, being in math classes for longer periods of time might add to math anxiety and/or avoiding math or school. Knowing this, schools and districts need to support teachers to create classrooms that view all students as mathematically brilliant, are interactive and relevant to students' lives, and allow every student to learn mathematics deeply. If a system really believes that every student is mathematically brilliant, acceleration that separates students by perceived competence (such as test scores or teacher recommendations or grades, all of which carry bias) will continue to segregate classes with one group taking the early acceleration option, those being more affluent, white, and Asian, and those in the "regular" classes those being from low-income families, Black, Brown, immigrant families from Black and Brown countries, and students with disabilities. This segregation, starting in middle school or even in ninth grade, affects all students throughout their high school and post-secondary paths.

Additional Thoughts for Schools Wishing to Detrack

The story of San Francisco is not over. Throughout these years, our team has worked to build a teaching community that truly believes in the brilliance of every one of our students. Coupled with the strong equity beliefs of our educators, teams of teachers, teacher leaders, and teachers have embodied this belief in their DNA, which shows in their collaboration and instructional practices.

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As the SFUSD district leadership has decided to go in a different direction, we believe that our educators, with their equity stance and beliefs in students, will find ways to continue to push for student success for all students of every background.

For others doing or wishing to do this work, providing ongoing and systematic professional development and teacher support must work to shift beliefs, improve pedagogical content knowledge, and view adult teams and departments as the unit of change. Professional learning must center a strengths-based approach, work to identify and build on students' mathematical brilliance and challenge beliefs about what mathematics is (weblike and expansive) and who can be successful (all students, especially our Black, Latine, and other students of color). Teachers must continue to be supported to learn equity centered pedagogies, to implement equitable practices, and to learn the depths and connections within the mathematical content. Sustainable change means doing all of this through the lens of the adult learning community. This change takes time, resources, and intentionality. When comprehensive support is unrealistic for all schools in your system, investing intensive coaching and resources with a smaller group of focal schools can create critical mass and an existence proof with success data. For non-focal schools and their teachers, there still needs to be professional learning and resources to support change. What are non-negotiable professional learning and resources that all teachers are provided? With limited resources, what deeper level coaching and additional support will some schools receive?

To show success and to allow equity policies to stay in practice, even with pushback, ongoing success data (not just in the first few years) will be needed. Be sure to prioritize data gathering, analysis, and creating of data reports regularly, especially from focal schools. The data collection and analysis provide a foundation to modify and enhance professional learning, coaching, and student supports, as well as to advocate to defend, change, or add additional policies that increase rather than restrict opportunities for each and every student, regardless of their race. Who will do this, and when? How can you make this a regular process? How can you make the data readable to your community to tell the full story (not only what you want or don't want)? What will define success (performance assessment tasks, standardized testing, grades, student and teacher interviews, course taking patterns, etc., and are the trends similar across race, language, dis/ability backgrounds, etc.)?

We know from SFUSD's past data and research that policies that track or place students into classes with lower expectations or engagement harm students of color and students who are under resourced. The work towards equity in mathematics requires not only more heterogeneous pathways vs tracks but also examining and taking action about all aspects of mathematics teaching and learning: content, assessment, pedagogy, belief systems, practices, and how race/bias play out in school and classrooms on a daily basis. Our solutions cannot be to reintroduce barriers for underrepresented students but to invest our energy and resources towards a system that helps our students thrive no matter their race or level of resources. We have much work to do.

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For more resources and lessons learned from the SFUSD context, see the book **A Guide to Detracking Math Courses: The Journey to Realize Equity and Access in K-12 Mathematics Education.** (Torres et al. 2023).

Resources

Huffaker, Elizabeth, Sarah Novicoff, and Thomas S. Dee. 2023. "Ahead of the Game? Course-Taking Patterns under a Math Pathways Reform." *EdWorkingPapers* No. 23–734. Retrieved from Annenberg Institute at Brown University: **https://doi.org/10.26300/yk56-yy47**

Hull Barnes, Elizabeth, and Angela Torres. 2019. A Case Study in *Catalyzing Change in High School Mathematics*. "Work to End Tracking and Offer Four Years of Meaningful Math Instruction." National Council of Teachers of Mathematics. **https://www.nctm.org/uploadedFiles/Standards_and_Positions/Work-to-End-Tracking-and-Offer-Four-Years-of-Meaningful-Final.pdf**

Torres, Angela, Ho Nguyen, Elizabeth Hull Barnes, and Laura Wentworth. 2023. *A Guide to Detracking Math Courses: The Journey to Realize Equity and Access in K–12 Mathematics Education.* Thousand Oaks, Ca.: Corwin Press, Inc.

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