

TODOS: MATHEMATICS FOR ALL

The mission of *TODOS: Mathematics for ALL* is to advocate for equity and high-quality mathematics education for all students — in particular, Latina/o students.

Student and Family-Centered Mathematics Assessment

Abstract

In this commentary paper that follows our recent [Position Statement](#), we remind school leaders and teachers to put the well-being of children and families first by accounting for unique social and emotional needs of students from living through twin pandemics when making assessment decisions. We **acknowledge** the interruption of schooling, and the desire of educators to do their best to support their students. We suggest **actions** that promote assessment by teachers in the classroom (virtual or in-person) and lean heavily on formative assessment as opposed to tests and mandatory benchmark testing. We conclude with **accountability**. We, as the multiple stakeholders in mathematics education, are accountable for maintaining the social and emotional well-being of our students while they are at school. We cannot ignore this responsibility in the process of identifying students' mathematical assets and developing new ones. We all must hold school leadership accountable for supporting teachers to help students build on what they know and expand to new concepts.

Acknowledging New and Ongoing Barriers to Equitable Assessment

Content assessments provide opportunities for teachers to gather information about what students know so we can meet them where they are and help them connect new learning to what they already understand. With so much unknown about student knowledge in the wake of the 2019-2020 school year, we will need to lean on what we know is best for the social and emotional well-being of our students and the development of a positive mathematics identity. We are concerned with growing attention to students “falling behind,” and how the start of the next school year may be devoted to identifying “deficiencies” and determining how students can be “fixed.”¹ Instead, we should critically examine the dominant assessment practices and reimagine ways to uncover what students already know.

The choices we make in the first few weeks of the new school year will send a message to the students, families, and the communities with whom we work. Those choices should make clear that our students’ well-being and sense of belonging are our priority.

However, starting the new year with testing to determine loss and gain of mathematical knowledge undermines this priority. Au (2019) reminds us that standardized tests originated as a weapon “to ‘prove’ that whites, the rich, and the U.S.-born were biologically more intelligent than non-whites, the

¹ In our recent Position Paper (*The Mo(ve)ment to Prioritize Antiracist Mathematics: Planning for This and Every School Year*), we describe in more detail how focusing on a loss of knowledge due to the global emergency is a distraction from focusing on the well-being of families surviving twin pandemics of COVID-19 and racism.

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poor, and immigrants" (p. 36). These purposes still dangerously permeate our education system and seep into classrooms, ultimately punishing Black, Indigenous, and People of Color communities (BIPOC). Educational researchers and scholars of color, in particular, have extensively documented that traditional assessment practices systematically sort students of color into tracks that deny opportunities for engaging in higher-order thinking when learning mathematics. Ibram X. Kendi speaks to this in his book *How to Be an Antiracist*:

The idea of an achievement gap between the races - with Whites and Asians at the top and Blacks and Latinx at the bottom - creates a racial hierarchy, with its implication that the racial gap in test scores means something is wrong with the Black and Latinx test takers and not the tests. From the beginning, the tests, not the people, have always been the racial problem. (p. 101)

Assessments (e.g. tests) can have detrimental impacts on student identity, including mathematics identity and disposition toward mathematics, when done excessively, unnecessarily, and without consideration for student well-being. We do not need to inflict more anxiety and unintentionally cause more trauma by giving kids assessments that sort and rank them. Rather, we must highlight assets of understanding in their thinking and reasoning. Additionally, a one-size-fits-all diagnostic can include inequitable practices that do not account for all students' needs and can lead to tracking and negative labeling. We must ask ourselves, "*If traditional standardized instruments perpetuate ranking and sorting of students, why aren't alternative assessment practices being formulated and utilized?*" We pose this question not as a way to reflect on the state of our educational system, but as a statement for change.

Actions for Centering Assessment on Students' Knowledge and Needs

Given our goal of prioritizing students' social and emotional well-being, and therefore prioritizing assessment embedded in activity, we propose some actions for the coming school year and beyond. We suggest prioritizing formative assessment and new assessment practices that provide evidence of what students understand. We stress utilizing parents as a resource for assessing students' strengths. We propose these assessments be utilized in time for the teacher, parents, and the students themselves to use the acquired information to make decisions about what comes next in any students' own learning trajectory.

More concretely, we propose that teachers be supported to:

1. Articulate learning goals that properly fit in the learning progression of mathematics, while accounting for students’ social and emotional development (what students already know, how this knowledge fits with current instructional decisions, where students should go next in the landscape of learning mathematics²);
2. Assess with a focus on concepts and mathematical practices (e.g., students’ explanations, justifications, and ways of reasoning);
3. Design their own assessments (rather than imposed by others) informed by observations of what students already know, by information gathered from students’ teachers from the previous year, and by contributions from what parents know of their own children’s mathematical practices.

See Fig. 1 below.

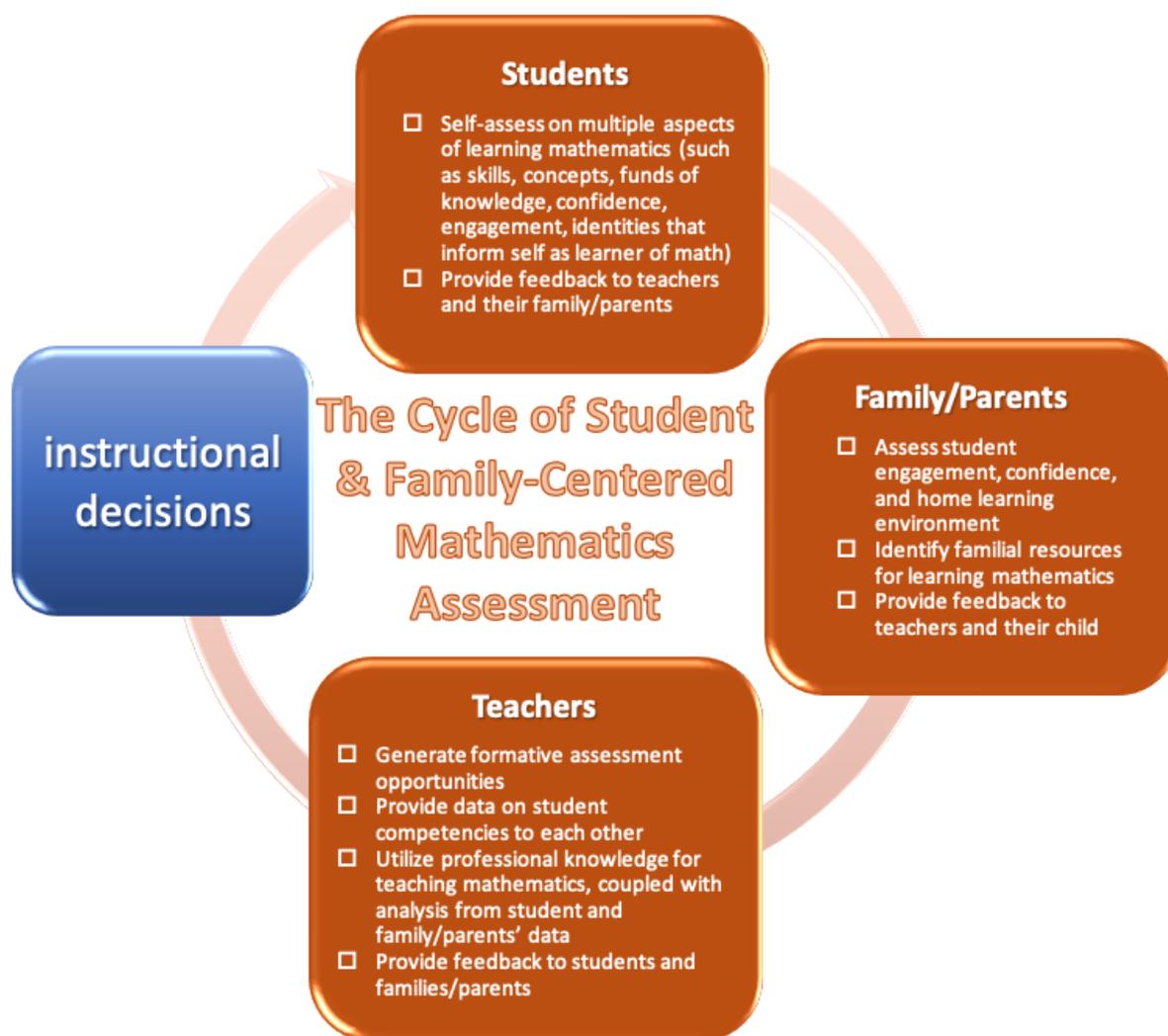


Fig. 1: The Cycle of Student and Family-Centered Mathematics Assessment

² For more on what is meant by acknowledging students’ humanity, see our commentary paper on social and emotional needs, www.todos-math.org.

We propose a view of teachers as professionals most attuned to the needs of their particular students, and therefore as those in the best position to decide how to assess their students' thinking. Asking students to self-assess may be familiar to some teachers. Drawing families into the assessment-instruction cycles may not be. We propose that parents contribute to assessment data, such as observations of students' confidence and attitudes towards math, as well as children's participation in mathematics embedded in homelife. Finally, we urge most mathematical assessment to take place within student activity, utilizing embedded formative assessment techniques (William & Leahy, 2015), in ways that also honor out-of-school learning that students may tap into to make sense of formal mathematical concepts.

Now, more than ever is the time to think outside of the standardized testing box. Our suggestions may require districts to suspend their own assessments or widen testing windows where possible, if the timing and frequency of assessments conflicts with the needs of the students. Schools or teacher teams could propose their alternative assessment strategies to the district for record-keeping if data tracking is the concern. Alternative assessment practices might take many forms, such as but not limited to, collection of evidence during group and individual discussions; individual, partner, and group sense-making routines; problem-solving tasks; and observed game playing strategies. What is important to the foreground in order to assess students' ways of knowing and content understanding is the need for a critical lens in determining what prerequisite understandings are necessary, if any, to support learning. Further, it is necessary to trust the teacher's knowledge of how to design and deliver these alternative assessments in their own classrooms.

Accountability

The past few months have been hard. In addition to the fear and uncertainty brought on by the pandemic, we have seen the increased disparities and inequalities lived by BIPOC. Going forward, we cannot justify returning to the classrooms and continuing to accept what was a normalized practice of teaching and over-assessing students of color in ways that did not lead to their own mathematics development. This moment should be a real turning point for the educational experiences of our students.

We are accountable for first maintaining the social and emotional well-being of our students while they are at school. We cannot ignore this responsibility in the process of identifying students' mathematical assets and developing new ones. We must hold ourselves accountable to the standard of supporting and connecting what they understand to new learning, in ways that center the whole person in the classroom and account for their social and emotional well-being.

With the data we gather, students should not be singled out for skill recovery, and they should not be encouraged to memorize procedures to catch up. It is us, the world of mathematics education, that needs to slow down and acknowledge we have all lived through and continue to survive through a stressful viral pandemic; academic gains will come, but not at rates we expect. Further, we must develop asset

thinking (to challenge deficit thinking), redefine what it means to be knowledgeable, and provide the appropriate bridge to ensure all students can connect their funds of knowledge to new ideas. With patience and support, we trust that teachers and parents can work together to nurture all students mathematically.

(Re)Sources:

Au, W. (2019). Racial Justice Is Not a Choice: White supremacy, high-stakes testing, and the punishment of Black and Brown students. *Rethinking Schools*, 33(4). Retrieved from <https://rethinkingschools.org/articles/racial-justice-is-not-a-choice/>

Kendi, I. X. (2019). *How to Be an AntiRacist*. One World.

William, D. & Leahy, S. (2015). *Embedding Formative Assessment*. Learning Sciences International.

Additional Resources for Educators and Families:

DREME Family Math <https://familymath.stanford.edu/>, capacity-building for parents as resources

Progressions Documents for the Common Core Math Standards: helpful background knowledge on how math concepts connect and progresst <http://ime.math.arizona.edu/progressions/#products>

TODOS Live! Webinar recording: *Tests, Assessments and Learning Math: Equitable Alternatives in Pandemic Times with Vanson Nguyen and Amanda Ruiz*: <https://vimeo.com/406074404>

Engaging in the Mathematical Practices (Look-fors) <https://www.nctm.org/Conferences-and-Professional-Development/Principles-to-Actions-Toolkit/Resources/5-SMPLookFors/>

NCTM Research Brief on Formative Assessment <https://www.nctm.org/Research-and-Advocacy/Research-Brief-and-Clips/Strategies-for-Formative-Assessment/>

Performance Assessment Tasks from Inside Mathematics
<https://www.insidemathematics.org/performance-assessment-tasks>

What are Alternative Assessments? University of Minnesota has some ideas and examples here, that can apply to the high school context as well as universities <https://cei.umn.edu/support-services/tutorials/integrated-aligned-course-design-course-design-resources/alternative>

Supporting New-Comer Students to Learn Mathematics: This research brief by TODOS board members includes thoughts about the role of assessment with students new to schooling in the US https://theanswerlab.rossier.usc.edu/wp-content/uploads/2020/06/AnswerLab_Issue9_main-061120-draft-2.pdf