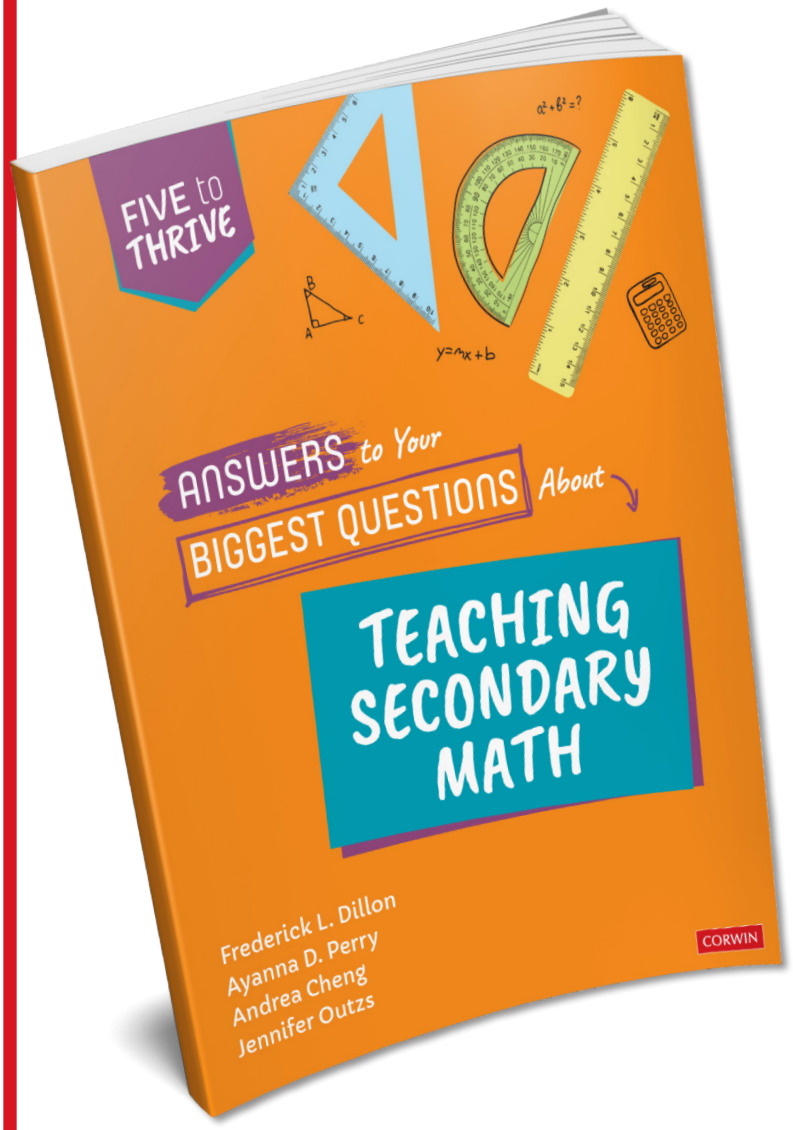

Thank you

FOR YOUR INTEREST IN CORWIN

Please enjoy this complimentary excerpt from Answers to Your Biggest Questions About Teaching Secondary Math.

LEARN MORE about this title!

CORWIN

How Do I Learn About My Students' Math Identities?

Our mathematical identities are formed by the experiences we have learning and doing mathematics. Those experiences shape our beliefs about our ability to succeed at mathematics and what doing mathematics looks like. Culture and perceptions play into our identity as well as interactions with friends, family, and instructors. A student's individual mathematical identity involves how one sees oneself as a doer of and learner of mathematics, as well as how the student views the knowledge, skills, habits, attitudes, beliefs, and relationships they need to develop to be successful mathematics learners (Aguirre et al., 2013).

THINK ABOUT YOUR OWN MATH IDENTITY

Before thinking about your student's math identities, it is beneficial to think about your own math identity. Teachers' math identities influence how they plan lessons, their belief in their students, how they implement their lessons, and how they assess learning. Becoming aware of your own math identity also helps you guide your own professional development. Here are some questions to consider:

- Did math come easily for me as a learner or was it a struggle?
- Do I value making mistakes in math?
- Do I value solving problems in multiple ways?
- Is math playful to me? Do I like to play math games and puzzles?
- What does "success" look like in math class?
- What does it mean to be good at math?
- Who is good at math?

Great Resource

This is a sample student math survey: https://bit.ly/3o1VZOq

THINK ABOUT YOUR STUDENTS' MATH IDENTITIES

Each and every student will come to you with a unique set of dispositions and beliefs about their abilities in math and their understanding of what it means to learn and do math. Race, gender, sexuality, citizenship, and so on are all identity markers that affect how one is viewed with respect to their math ability and in turn affect how people are treated and invited to do math. By understanding and acknowledging your students' math identities, you can better plan for instruction as well as creating a strong, supportive community of learners.

One aspect of identity is self-efficacy. That is, the belief in one's ability to succeed in achieving an outcome or reaching a goal has been shown to be more important than prior knowledge for growth. When students view themselves as capable doers of mathematics and believe in themselves, they often outperform students who have the necessary prior knowledge but do not believe in their ability to overcome difficulties (A. J. Martin & Marsh, 2006; Multon et al., 1991; Skaalvik & Skaalvik, 2004).

You want to gain useful information about your students, and you want your students to gain insight into their own identities and how they see themselves both in relation

to math and as part of your mathematical community. Activities that uncover your students' mathematical identities need to be worthwhile and productive for both you and your students. Here are some suggested activities:

1. Name Tents with Feedback (original idea from Sara Van Der Werf @ saravdwerf), usually done the first week of school, can be used to uncover students' attitudes and beliefs about mathematics. Each student makes a name tent with their name on the outside and a space inside to write comments to and answer prompts from the teacher as well as a response from the teacher. You can also ask students to share their pronouns on their name tents.
2. A mathography is similar to an autobiography with a focus on a student's history with math. Have students write about themselves as an individual (hobbies, talents, interests, race, gender, community), themselves as a student (favorite subjects, importance of school in their lives), and themselves specifically as a math student (favorite topics, how you learn best, how you feel about math). This allows you to get to know each student's background.
3. Write a Dear Math Teacher letter sharing experiences that have formed students into the mathematicians they are today. Students can include what they like/dislike about math and good/bad experiences they have had in the past.
4. Students can write a Math Timeline that includes their first math experiences, favorite math experiences, classes they took, math-related moments they specifically remember, and so on.
5. Journal Prompts can be given to students at the beginning of the year to get a baseline as well as throughout the year to show progress. Prompts could include questions about attitudes in math, such as, "Am I good at math?", "Do I enjoy math?", and "Is math useful?"
6. A start-of-the-year survey could ask, "What should I know about you as a learner to help you be successful in this class?"
7. A Math Beliefs Inventory allows both you and your students to reflect on how they view themselves as learners.

Teaching in Flexible Settings

Use technology, like Google forms or Desmos, for these activities

Identity and Agency

Continuous/repeated small, meaningful moments of connections are more impactful than a single flash activity at the start of the year.

FIND WAYS TO HAVE A POSITIVE IMPACT ON STUDENTS' MATH IDENTITIES

Instructional choices that you make and beliefs that you have affect student engagement, support learning, and develop students' identities.

MAKE INSTRUCTIONAL CHOICES THAT ACTIVATE PROBLEM SOLVING

- Ask students to attempt to solve a math problem in multiple ways and honor the variety of solution paths that are found. Students should be the authors of ideas.
- Incorporate explorations and investigations, where students interact with mathematics in a way that allows them to "discover" or experience mathematics.
- Employ challenging, open-ended, and/or nonroutine tasks that offer new solutions or insights that are unexpected for a student.
- Use collaborative learning groups, such as randomly assigned small groups, because participation is an integral part of learning and encourages creativity.

- Have students explain their strategies so they are seeing other people's approaches to solving a math problem and ways of processing.

BELIEVE IN YOUR STUDENTS

- Believe unconditionally in each person's mathematical capacity. How you think about each student is tied directly to the way you interact with and treat them.
- Include everyone. When math teachers offer full membership, particularly for hesitant learners, students change their attitudes and beliefs about who is good at math and what success in math looks like.
- Maintain a safe and inviting relationship involving trust and belief in your students' brilliance.

REDEFINE MATHEMATICAL SUCCESS

- Vigilantly view student attributes as assets rather than deficits (see Strengths, p. 21)
- Broaden your view of what mathematical competence looks like (posing great questions, working in an organized way, making connections, finding multiple ways to solve problems) and praise that competence when you see it.
- Normalize mistake-making and value mistakes as opportunities to learn.
- Showcase mathematical brilliance from people of varied backgrounds, cultures, and ethnicities.

Great Resources

Desmos Blog: Hamburger, A., Helft, S., & Moynihan, F. (2021, July 14). Rewriting our list of mathematicians. *Desmos*. https://bit.ly/3lLfckw; arbitrarilyclose Mathematician Project: https://bit.ly/3EDMUku