(Childs & Davis, 2023). The last part of this statement, "must be willing to alter traditional beliefs and practices," requires us to address school practices that have historically reflected the norms of monolingual, white, middle-class, heteronormative, cisgender, able-bodied, Christian children, and which often exclude children who come from racially and ethnically diverse cultural and linguistic backgrounds, low socioeconomic backgrounds, various religious backgrounds, those who identify as a member of the LGTBQIA+ community, children who identify as having one or more dis/ability, and those who identify with intersections of one or more of these identities.

STANDARDS-BASED MATHEMATICS INSTRUCTION

Standards-based mathematics instruction is grounded in pedagogical principles that emphasize learning for understanding over learning that focuses primarily on procedural fluency and memorization of algorithms and facts. Educators are provided a set of standards that outline the content and mathematical practices and processes all students are expected to achieve. Instruction develops in a discourse-rich environment supported by reasoning and justification (NCTM, 2014).

CULTURALLY RELEVANT PEDAGOGY

Culturally relevant pedagogy (Ladson-Billings, 1995) consists of three tenets.

1. **Academic success:** Children's development of their academic skills.
2. **Cultural competence:** Utilizing a child's culture as a vehicle for learning and providing children opportunities to learn about other children's culture.
3. **Critical consciousness:** Children's development of broader sociopolitical consciousness that enables them to critique the culture norms, values, and institutions that produce and maintain social inequities.

When educators employ culturally relevant pedagogy, they purposefully engage and intentionally lift up the mathematical knowledge bases and problem-solving approaches for the full and diverse range of their students, regardless of the demographics their children present. They actively tap into the cultural backgrounds and social identities of their children and then use those characteristics as conduits for more effective teaching. The ultimate goal is to engage students in critical consciousness, which is an important aspect of K–12 education.

CULTURALLY RESPONSIVE TEACHING

Culturally responsive teaching (Gay, 2018) is defined as "using the cultural characteristics, experiences, and perspectives of ethnically diverse students as conduits for teaching them more effectively (p. 106). In culturally responsive teaching, educators value the importance of children's racial and cultural diversity in the teaching and learning process. In addition to valuing,

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educators also incorporate these components into the classroom experience. Too often, "children have to attempt to master academic tasks while functioning under cultural conditions unnatural (and often unfamiliar) to them. Children enter schools and are expected to divorce themselves from their cultures and learn according to European-American cultural norms (Gay, 2002, p. 114). As social justice educators, we must collectively work to change this narrative and ensure every child feels seen, valued, and heard.

A key differentiating component between culturally responsive teaching and culturally relevant pedagogy is the critical consciousness tenet. Culturally responsive teaching focuses on intertwining children's cultures with the educational experience, while culturally relevant pedagogy takes it a step further: Now that you have made sense of culture(s) it is time to use that information and take action to impact society. Actions should focus on addressing inequities in society. Thus, the former is focused on solely learning new information and the latter is focused on taking action based upon the newly learned information. The action component leads to TMSJ.

TEACHING MATHEMATICS FOR SOCIAL JUSTICE

TMSJ operationalizes standards-based mathematics instruction, culturally responsive teaching, and culturally relevant pedagogy with an added element of social action. Robert Q. Berry III and colleagues (2020) take the view that "teaching mathematics for social justice (TMSJ) is about teachers emphasizing equitable opportunities for each and every student, as well as developing an orientation toward using mathematics to enact decision-making power" (p. 19).

In TMSJ, the focus is not solely on getting children to just "do something" in the classroom (e.g., perform procedural calculations on a worksheet or apply mathematics to a building project in ways they've been previously shown). Nor does it view children merely as empty vessels to be filled with someone else's knowledge. Rather, the key to TMSJ lies in focusing on the goals of developing children's positive social, cultural, and mathematics identities and, ultimately, classroom equity.

Becoming a Social Justice Mathematics Educator

We take the stance that all mathematics educators are involved in the work of social justice, which includes the following:

1. Cultivating teacher-to-children and children-to-children relationships
2. Questioning systemic structures, policies, and practices that result in inequitable children outcomes
3. Advocating for all children to have access and opportunities to rich mathematical learning experiences

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4. Designing mathematical learning to ensure that the goals of developing children's positive social, cultural, and mathematics identities are achieved
5. Taking action that has an impact on a social issue

As social justice mathematics educators, we must be intentional in our work so that children can

1. use their mathematics knowledge and skills for the betterment of their communities and society, and
2. work collaboratively—with persons of all racial or ethnic backgrounds, socioeconomic statuses, and social identities—to conscientiously address the social justice issues that impact themselves and others.

Let's look at where TMSJ comes from.

TEACHING MATHEMATICS FOR SOCIAL JUSTICE IS EQUITY FOCUSED

Berry et al. (2020) further define TMSJ as "much more than the lessons teachers might implement in their classrooms. It is about the relationships they build with and among students; the teaching practices that help them do that; and the goals to develop positive social, cultural, and mathematics identities—as authors, actors, and doers" (p. 23).

Eric Gutstein (2003), professor of mathematics education and curriculum and instruction at the University of Illinois Chicago, for example, identifies the three components of social justice–oriented instruction as

1. helping children develop sociopolitical consciousness,
2. providing children with strengthened senses of agency, and
3. positively highlighting children's diverse social and cultural identities.

Tonya Gau Bartell (2012), associate professor of mathematics education at Michigan State University, posits that mathematics instruction should target three additional goals:

1. teaching children how to apply mathematics to issues of social injustice,
2. helping children develop critical consciousnesses that deepen their knowledge of sociopolitical contexts, and
3. supporting children's involvement in social action.

In Bartell's (2012) view, social justice–oriented mathematics instruction can help children not only understand the world in which they live but also change it. TMSJ also presents a process by which teachers use mathematics to help

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By extending application of mathematics knowledge and skills to real-life matters, children can see mathematics not as something separate from their lives but as an essential aspect of their lives.

children understand their roles and places in society and change those roles when social injustice and inequity reign. Bartell argues that by extending the application of mathematics knowledge and skills to real-life matters, children can see mathematics not as something separate from their lives but as an essential aspect of their lives; for example, they may need to determine how much money they could save if they banded together with their neighbors to purchase goods or services in bulk, how many square feet of solar panels they will need to cover the roofs of community-renovated housing and lower the carbon footprint of their homes, or how to assess data from corporate earnings reports or balance a nonprofit organization's budget.

Take a moment to complete Try This: Connections to Mathematics.

TRY THIS: CONNECTIONS TO MATHEMATICS

Have children identify one personal thing they like to do and one socially impactful thing they are doing or would like to do. For the younger grades, you will possibly need to help them make sense of a socially impactful thing they are doing or would like to do. For example, you may ask them, "What community problem would you like to solve?"

After gathering these two pieces of information, work collaboratively with the children to determine the mathematical connection. This connection should be broad and showcase mathematics beyond just calculations.

Personal	Mathematics Connection (Personal)	Socially Impactful	Mathematics Connection (Socially Impactful)

For example, if a child states they want to reduce violence in their community, this can be quantified through publicly available data. Another example, if a child states they like to sleep as their personal thing (we all know children who will be thinking outside the box), the mathematical connection can simply be the amount of time they like to sleep. Ultimately, the goal of this activity is to show children that mathematics is all around us. The key is to keep the connections simple and use them to launch a discussion.

More recently, the NCSM: Leadership in Mathematics Education and TODOS: Mathematics for All position paper (2016) stresses the importance of mathematics instruction focused on issues of social justice as a way of eliminating

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the tendency toward deficit views of mathematics learning, reducing the role of mathematics as a "gatekeeper" subject, engaging the sociopolitical turn of mathematics education, and elevating the professional learning of mathematics teachers and leaders. This was followed by the Benjamin Banneker Association (2017) position that mathematics instruction can apply the concept of social justice through three lenses: "about" social justice, "with" social-justice, and "for" social justice. Last, Berry et al. (2020) maintain that social justice–focused mathematics instruction is about teachers emphasizing equitable opportunities for every child and using mathematics to increase children's decision-making power.

The common thread these scholars express is a keen focus on harnessing the power of mathematics as a catalyst for social change. The TMSJ approach shows mathematics educators how to become effective, social justice–oriented teachers who use new ways of thinking about and using mathematics to illustrate and expand children's knowledge about societal challenges. It can guide you to provide your children with mathematics-based skills to help them solve real-life problems resulting from social injustice in their school, communities, society, and the world. Table 1.2 shows the connections among three of the elements by describing each approach's views on academics, learning about

Table 1.2. *Connections Among Culturally Based Pedagogies*

	Culturally Relevant Pedagogy (Ladson-Billings, 1995)	Culturally Responsive Teaching (Gay, 2002)	Teaching Mathematics for Social Justice (Wager & Stinson, 2012)
Definition	Based on three tenets: 1. Children must experience academic success. 2. Children must develop and maintain cultural competence. 3. Children must develop a critical consciousness through which they challenge the status quo of the current social order.	Using the cultural characteristics, experiences, and perspectives of ethnically diverse children as conduits for teaching them more effectively.	Teaching mathematics for social justice is engaging children in mathematics learning experiences rooted in social issues, with a focus on transforming children's communities.
Views on academics	Children must experience academic success	Standards based	Rooted in rich problem solving
Learning about other cultures	Requires children to become at least biculturally competent	Rooted in educational experiences that integrate various cultures into the classroom	There is a possibility children will learn about other cultures through the social issue, but it is not a requirement
Beyond the classroom	Children learn in a manner to challenge the status quo. Cognitively children will be charged to act; however, it is not a requirement.	Lessons focus on the incorporation of culture into the classroom setting. Learning can extend beyond the classroom but is not a requirement.	Lessons extend beyond the classroom and into children's communities.

Sources: Ladson-Billings (1995), Gay (2002), Wager & Stinson (2012).

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other cultures, and its impact beyond the classroom. Note that we did not include standards-based mathematics instruction because we see that as a foundational element of the mathematics classroom, a necessary and foundation for learning.

TEACHING MATHEMATICS FOR SOCIAL JUSTICE IS CHILD-CENTERED

Another aspect of TMSJ is that, beyond being culturally responsive and relevant, the mathematical learning itself must be child-centered. In a child-centered mathematics classroom, children see themselves in the mathematical topic or concept, and the teacher uses cognitively rich thinking tasks. These tasks have multiple entry points and multiple problem-solving pathways that engage all children and guide the children through their own problem-solving process in collaboration with peers to make sense of the mathematics at hand. The teacher is a facilitator who asks questions, provides scaffolding to help children clarify and advance their thinking, and helps them generalize about the mathematics they are coming to understand. This method provides all children in the teacher's classroom with opportunities to engage in the topic by accessing their knowledge base *through their unique identities*. In this way, every child can contribute to the mathematics classroom. Every child is encouraged to bring what they know mathematically—based on their unique cultural understandings—into what you, as a future social justice mathematics educator, will come to see and convey as the "whole universe of learning." TMSJ recognizes that every civilization and people of diverse cultures and worldviews have contributed to the development of mathematics and that children bring their own wealth of knowledge and interesting ways of thinking and sensemaking to the classroom. Thus, the wealth of mathematics knowledge, skills, and practices that diverse groups of children embody should be actively celebrated and shared, respectfully and constructively, to enhance all children's mathematics learning and understanding.

All children, not just melanated children, need to understand the history of mathematics and how it arose from many cultures. They should understand that although mathematics initially arose from a need to count and record numbers, people engaged in mathematics while going about their practical lives beyond just the modern-day focus on algorithms and solution-getting (Joseph, 2011). Mathematics was used to make sense of the world, from understanding time to travel guidance to spiritual understandings and connections. This understanding is important for children because as naturally inquisitive people, they can see how others used math to make sense of their lives. Joseph (2011) provides countless examples of the multicultural roots of non-European mathematics, which will help today's racially and ethnically diverse children better understand their place in history and how their ancestors contributed to mathematics.

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For example, in Africa, the Ishango bone, an engraved bone more than 10,000 years old, is believed to have been used to count, play games, and engage in lunar observations, among other uses. The ancient Chinese used mathematics for fraction operations, quadratics, trigonometry, and other uses. Ancient Indian civilizations discovered the sine functions and used mathematics for astronomy and navigation, among other uses. Islamic contributions to mathematics included geographic uses, analysis of property relations, and distribution of inheritances. These are just a few instances of ancient civilizations' uses of and contributions to mathematics. The more we, as educators, can de-center the "Greek" lens when exploring the history of mathematics, the more children can have an opportunity to see themselves in mathematics and the better white-identifying children will understand the essential and rich contributions of others.

TMSJ also supports the development of the whole child by preparing them with the knowledge, skills, attitudes, and values to thrive in their classroom, school, community, and beyond. Table 1.3 lists the competencies and skills from three resources that inform this work: the social-emotional well-being competencies outlined by CASEL (n.d.), the P21 (2019) *Framework for 21st Century Learning*, and the OECD (2019) *Learning Compass 2030* (see Chapter 6 for additional connections).

The more we as educators can de-center the "Greek" lens when exploring the history of mathematics, the more children can have an opportunity to see themselves in mathematics and the better white-identifying children will understand the essential and rich contributions of others.

Table 1.3. *TMSJ Supports Whole Child*

Social & Emotional Learning	21st Century Learning	Learning Compass 2030
• self-awareness • self-management • responsible decision making • relationship skills • social awareness	*Learning and Innovation Skills* • creativity and innovation • critical thinking and problem solving • communication and collaboration *Life and Career Skills* • flexibility and adaptability • initiative and self-direction • social and cross-cultural skills • productivity and accountability	*Core Foundations* • cognitive foundations (literacy and numeracy, upon which digital literacy and data literacy can be built) • health foundations (including physical and mental health and well-being) • social and emotional foundations (moral and ethics) *Transformative Competencies* • creating new value • reconciling tensions and dilemmas • taking responsibility

Sources: CASEL (n.d.), P21 (2019), OECD (2019).

TEACHING MATHEMATICS FOR SOCIAL JUSTICE IS ACTION-ORIENTED

TMSJ aims for action as its ultimate goal. It commences well before planning to involve children in a social justice mathematics lesson. The classroom setting holds significant importance because children are expected to

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learn alongside classmates from various backgrounds, races, ethnicities, and cultures, thereby gaining exposure to diverse perspectives. The initial steps involve learning about oneself, exploring identities, biases, and beliefs (refer to Chapter 2) and understanding the children, their identities, strengths, and interests (refer to Chapter 3). These actions are pivotal in establishing a mathematical learning environment (see Chapter 4) that engages all children in the mathematics classroom (see Chapter 5) and fosters a sense of belonging and of being valued. This process demands your commitment to learning, potentially prompting adjustments to instructional practices and the acquisition of new practices.

As you implement social justice mathematics lessons, you'll have the chance to gather input from your children and families regarding current community issues (see Chapter 6). Collaboration with families, community members, and colleagues in the planning process might result in their involvement in the actual lesson (see Chapter 9). Following or even during the lesson, children should be provided with opportunities to explore ways to expand and apply their classroom learning to actions they can take within their school, community, and beyond (see Chapter 8). Consequently, every facet of TMSJ entails some form of action.

To hear more from the authors about the social justice mathematics teaching framework, listen to this **conversation with Dr. Childs and Dr. Staley.**

qrs.ly/xmfful9

To read a QR code, you must have a smartphone or tablet with a camera. We recommend that you download a QR code reader app that is made specifically for your phone or tablet brand.

Summary

In this chapter, we introduced a social justice mathematics teaching framework that consists of five elements: equity, standards-based mathematics instruction, culturally relevant pedagogy, culturally responsive teaching, and teaching math for social justice (TMSJ). After examining each of the elements, we concluded the chapter with a discussion of the child-centered nature of TMSJ and also discussed how the various aspects of TMSJ are action oriented.

As you set off and work your way through this journey to becoming a social justice mathematics educator, we want to provide you with the right tools. One of those is the TMSJ Action Plan (Appendix A). You can access this on the book's companion website and use it with each chapter of the book. We have provided space for you to record your key takeaways from each of the chapters and encourage you to identify possible next steps to support you as you continue through each stage of your social justice mathematics teaching journey.

online resources The TMSJ Self-Assessment is available for download at https://qrs.ly/wbfixtr

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REFLECT

- How do the elements of the equity-based mathematics teaching framework come together in TMSJ? Which component(s) do you need to note for further exploration?
- Why does teaching mathematics for social justice (TMSJ) matter to you?

ACT

1. Add your key takeaways and next steps to your TMSJ Action Plan.
2. Complete the following TMSJ Self-Assessment:

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- What are the first three thoughts that come to mind when you think of social injustice?
- Write down three words or phrases that describe your own mathematics teaching style.
- What emotions come to mind when you think about the intersection of mathematics and social justice? What excites you? What worries you?
- What is the biggest social injustice issue in the community in which you teach? Why?
- Now that you have responded to the preceding questions, use the following chart to reflect on where you are.

	Beginner	Intermediate	Advanced
Self-Reflection			
Children Under Your Purview			
Classroom Environment			

online resources Available for download at https://qrs.ly/wbfixtr

Where to Next?

If you, as a mathematics educator at any grade level, realize that *all* children should be seen and heard in your classroom, then TMSJ is for you. If you believe that they can bring, even into a mathematics environment, their authentic, culturally informed mathematics knowledge and apply it effectively and creatively to real-world problem solving, then TMSJ is for you.

If you want to present your children with rich, high cognitive-demand mathematics tasks and lessons that have meaning beyond the classroom setting, then TMSJ is for you. Again, TMSJ will help you propel your children toward success in many real-world mathematics applications.

Last, if you are tired of culturally monolithic, monochromatic mathematics classrooms that fail to buzz with the excitement of authentic discourse and interaction and that are no way near sites of continuous feedback that can help you escalate children's learning, then you should start your TMSJ journey *now*! The best way to do that is to head to Chapter 2, which will help you engage in the critical self-reflection that is a must-do before shifting your instruction to a TMSJ orientation.

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MIRRORS: UNDERSTANDING YOURSELF

2

Now that we have gained a foundational understanding of what teaching mathematics for social justice (TMSJ) means, it is time to set you off on what we hope is a transformational journey. We recognize that every educator will enter into this work at a different place, so the key is for you to focus on you and where you are today. This chapter is meant to help you do that. In this chapter you will

- engage in a personal reflection about your various identities as a human, an educator, and a teacher of mathematics;
- explore the connections between your identities, beliefs, and biases; and
- gain an understanding of how decentering your own identity and whiteness in the classroom will make room for the identities of the children under your purview.

My Identities Matter

People have all kinds of identities—some outward-facing and some inward-facing. Your identity markers include your race and ethnicity; gender; sexual identity; age; religion or nonreligion; native language; socioeconomic status; education; profession; relationships and positions with other people; and physical, mental, and emotional abilities. Some identity markers are given to us and are fixed, while others are changeable and have varying impacts on our lives. Take a moment and consider, "What identities describe you when you are at work?" In every space you enter, you bring a lived experience that may be similar to or different from the experiences of the children in your classroom. Understand that the value you place on specific identities can change over time. In addition, you may have some identities that you do not consciously consider because they may not have a regular impact on your daily life. Take some time to complete the Try This: Reflecting on My Identity Markers as you unpack your identity markers, how they impact your life, and how they impact you as an educator. This can be completed individually or as a part of a group activity. Allow yourself ample time to complete the activity and reflection

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questions. If you are working alone, fully explain your thoughts and deeply reflect upon your responses. If you are working with a group, carefully respond to the reflection questions according to your personal comfort level. You are not under any obligation to share pieces of your identity that you are not comfortable with.

TRY THIS: REFLECTING ON MY IDENTITY MARKERS

Mark the top five identity markers that impact your role as an educator, then complete the reflection questions.

Age	Religion
Gender	Immigrant Status
Race	Physical Appearance
Ethnicity	Sexual Orientation
Education	Family Status
Geographical Location	Language
Nationality	Physical Ability (able-bodiedness)
Marital Status	Socioeconomic Status

Reflection Questions

1. Which three of the five identity markers are your most important identities? Why?
2. Which ones do you think others typically notice about you? Why?
3. Which three impact your role as an educator the most? Why?
4. When in your educational environment are there identities you prefer to minimize? Why?
5. What feelings arose as you completed this reflection? As you shared your reflection?

Source: Adapted from Aguilar (2021).

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Now that you have reflected upon your identity markers, you are probably still asking yourself, "Why is it important to critically reflect on one's identities? How does this impact my role as an educator?" To be a good educator, this activity does not necessarily matter; an educator's job is to teach children specific content and then go home. However, as an educator committed to TMSJ, your work goes beyond just teaching children content. It expands to teaching children about life and how mathematics can be used to improve their lives and communities.

As an educator committed to TMSJ, your work goes beyond just teaching children content. It expands to teaching children about life and how mathematics can be used to improve their lives and communities.

Since the beginning of time, mathematics has played a role in every civilization (Joseph, 2011), and TMSJ provides the space to continue this legacy. This starts with each of us truly understanding who we are and how we enter this work. Understanding who you are through your identity markers helps you better understand how you show up in different spaces, including in the educational setting, and more importantly, how your instructional practices are formed. Let's explore the intrinsic values of one's identities as we look back at Try This: Reflecting on My Identity Markers. Think about how much these identities mean to you and how they shape your life. Reflect on how often you consciously consider these identities and the role they may or may not play when you are in your educational environment.

Check In

Now, imagine that tomorrow, when you enter your educational setting, you have to leave the three identities you care about the most at the entrance.

What feelings are arising? Do you believe you will now be successful in the educational setting? Would you still want to enter?

Picture yourself as a child entering the classroom or school. Before crossing the threshold, what identities must the child leave at the door to assimilate into the setting and survive? Every day there are children who enter our schools and classrooms and they know some of their identities are not valued in the space. For example, there may be a child who identifies as LGBTQIA+, and by not using the child's preferred pronouns, the school has shown the child they are not valued and won't be seen. The child is dehumanized, not because of anything they have done, but for simply existing. Now consider the child whose identities do not match many of the identities within the school or classroom. It is one thing when identities do not match; it is another when, throughout the day, adults organizing activities such as musical events, curriculum projects, and other extracurricular activities never align with the child's identities while, in contrast, other children's identities are repeatedly validated.

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We must remember how we felt imagining that, as adults, we would have to leave our identities at the door and consider how our children are—intentionally and unintentionally—subjected to educational settings where they are forced to do the same and must adapt to the setting. We challenge you as a reader to consider your setting and ask,

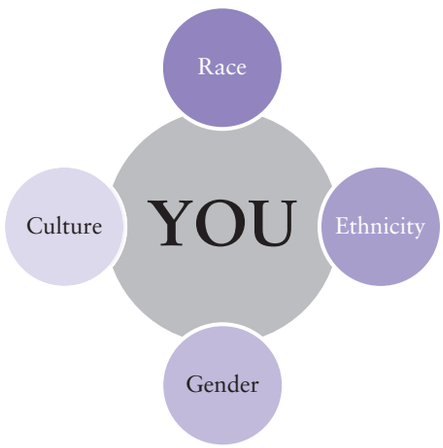
- What is being done to ensure every child can authentically be themselves?
- What is being done to eradicate any barriers to a child being their full self?
- What am I doing to ensure the educational setting is inclusive?

THE VISUAL IDENTITY MARKERS

Let's further explore your identity markers and how they have impacted your career and your role as a mathematics educator. Do you feel your identities have enhanced or hindered your career opportunities? Why? Now consider your race, ethnicity, culture, and gender identities (see Figure 2.1). How have these identity markers impacted your career? How do they show up in your mathematics classroom setting?

We focus on these four identity markers because they play a keen conscious and unconscious role in the mathematics classroom. They are the identity markers that are observed when someone enters a room, and assumptions are naturally made based on what people see. We say "assumptions" because one does not truly know a person's identities unless they tell you. However, these four identities by which folx are generally viewed and categorized shape society. Race and ethnicity are deeply rooted identity constructs that have been consistently used as a measuring stick in society and have become part of everyone's social conditioning. Together with culture and gender, these identity constructs are

Figure 2.1 *Your Visual Identity Markers*



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deeply embedded in the fabric of our culture, and they play a major role in the beliefs and biases that are formed about you and your children.

We have to be honest with ourselves and acknowledge that we live in a gender-oriented, racialized, and ethnically based society. Nearly every form we fill out asks us about our gender, race, or ethnicity. Personal data is tied to our race and ethnicity. Where we live, what schools we attend, where we grocery shop, how we interact with people, what languages we speak, what food we eat, and what customs we cherish are all often tied to race and ethnicity. We live with the legacy of policies and laws based on people's race and ethnicity. Student achievement data, course placement and acceptance, and graduation rates are all bound together with data about race and ethnicity. Our diversity is beautiful and is a strength, and yet for many, it can present many barriers. Many of us, regardless of race or ethnicity, have never deeply investigated what this means at the individual level and how these two specific identity markers play a major role not only in our personal lives but also our professional lives and in relation to the children in our classrooms.

Check In

During the school day, how often do you think about the race, ethnicity, gender, or culture of

- yourself?
- your colleagues?
- children you teach?
- contextual settings for lesson tasks and experiences?

MY IDENTITIES SHAPE MY BELIEFS

Your personal identity markers are vital to reflect on as you start to think about your practices because they have been at the core of shaping who you are as a person and educator through your background and lived experiences, inside and outside of educational settings. It is important to ask yourself, "How do my identities impact my teaching and the children in my care?" To understand how your identities shape your teaching practices, we start by considering the beliefs we hold about your children as people; thinkers, doers, and creators of mathematics; and ultimately learners worthy of engaging mathematical experiences. Take some time to complete

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TRY THIS: IDENTITIES AND BELIEFS

1. List the top five identity markers you identified in Try This: Reflecting on My Identity Markers.
2. For each identity marker, consider how it shapes your belief about your children as doers and learners of mathematics. Record your reflections in the chart below.

My Identity Markers	Beliefs About My Children

online resources Available for download at https://qrs.ly/wbfixtr

Try This: Identities and Beliefs as you reflect on how your identities shape your beliefs.

As you reflect on your identities and how they shape your beliefs about your children, we invite you to begin to think about how this shows up in your practices: mindset, attitudes, and behaviors. You might notice that your beliefs lead to practices that are driven by your "likes" and "dislikes." In other words, you are beginning to identify your biases about your children as learners and doers of mathematics.

Identifying My Biases and Beginning the Work to Address Them

> The Plague and power of bias are too consequential to let them go unacknowledged and unchecked. They can affect us in surprising ways. (Eberhardt, 2019, p. 30)

We now turn your attention to unpacking your biases—those you are aware of and those that you are not. "We have a bias when, rather than being neutral, we have a preference for (or aversion to) a person or group of people" (Colorado Department of Education, n.d.). Figure 2.2 provides a visual of the underlying concepts of bias.

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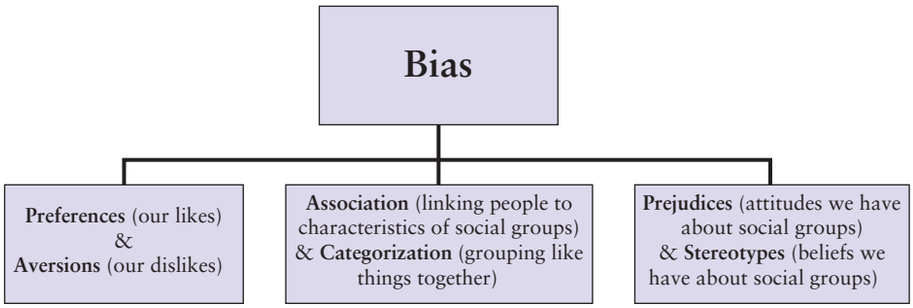
Figure 2.2 *Underlying Concepts of Bias*



Source: Adapted from Eberhardt (2019).

Because your biases condition how you look at and relate to your children, it is vital that you understand them, acknowledge the consequences of your checked and unchecked biases, and mitigate those biases that need to be addressed. The biases you carry can affect

- *what you perceive about your children*—the way you view them and their families,
- *how you think about them*—beliefs about their abilities to learn and do math, and
- *the actions you take*—the mathematics environment you create, the learning experiences you design, and the relationships you develop with your children.

We also have unconscious biases (or implicit biases) that associate stereotypes or attitudes toward categories of people without conscious awareness, which can result in actions and decisions that are at odds with one's conscious beliefs about fairness and equality (Osta & Vasquez, n.d.).

There are two questions that you may be asking yourself: "How can I uncover my own biases?" and "What implicit biases do I have that must be addressed?" Answering these questions requires you to take a critical look at yourself and through the "windows" (see Chapter 3) at your children to identify

1. your likes and dislikes about who you teach, where you teach, and what you teach;
2. the ways children are grouped or labeled in your school and school community;
3. your beliefs and attitudes about your children, school, school community, and teaching and learning of mathematics.

Take a moment to complete the Try This: My Biases as you start to identify your biases.

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TRY THIS: MY BIASES

- Review your responses to Try This: Identities and Beliefs and select one identity marker and its belief statements to record in the chart below. (Note: In the Reflection and Action at the end of this chapter, we invite you to complete this exercise for the other four identity markers and beliefs.)
- Capture your thoughts for each prompt as you consider the impact of your biases on who you teach, where you teach, and what you teach.
- Review your responses and identify (underline, circle, or highlight) where you are not able to be "neutral" because you have a strong preference or aversion. These are your biases!

My Identity Marker	Beliefs About My Children
*What are your preferences (likes) and **aversions** (dislikes) about . . .*	
Who you teach (children & families)	
Where you teach (school and school community)	
What you teach (grade levels, mathematics courses/content)	
*In what ways do you **associate** (group) or **categorize** (label) . . .*	
Who you teach (children & families)	
Where you teach (school and school community)	
What you teach (grade levels, mathematics courses/content)	
*What are you stereotypes (beliefs) and **prejudices** (attitudes) . . .*	
Who you teach (children & families)	
Where you teach (school and school community)	
What you teach (grade levels, mathematics courses/content)	

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Now that you have identified your biases, seek out a critical friend to discuss your responses with and ask them to provide you with additional feedback on things you might have missed—your "blind spots"—when you looked in the mirror. (Chapter 9 goes into further detail about the importance of relationships with colleagues as you continue your TMSJ journey.) It is often difficult to identify your "blind spots," also known as implicit biases, as these are the areas that don't show up in our conscious knowledge. A critical friend can provide insights about how you talk about your children, classroom, school, or school community; your interactions with children in the classroom and school; your daily preparation and planning for mathematics class; and the instructional approaches and tools used in your mathematics classroom, just to name a few areas.

Hopefully you now have identified a few biases and are ready to begin the work of checking those that show up in your mathematics classroom and especially in your interactions and relationships with your children. Table 2.1 provides four areas for self-reflection with prompts around identity, language, relationships, and behavior. We also include Actions to Consider and What It Looks Like to assist you in identifying any biases that need to be checked.

Table 2.1 *"Checking" My Biases*

Notice & Wonderings	Actions to Consider	What It Looks Like in the Mathematics Classroom
My Identity What connections can you make between your identity and your biases?	• Acknowledge the biases that are connected to your identity and consider how they might show up in the mathematics classroom. • Select one to address/be more conscious of and check as needed.	Monitor use of a preferred instructional approach (i.e., avoid using procedural approach if not aligned to the intention of the standards for a lesson).
My Language How do your biases show up in the words you use when speaking about your children, families, classes, school, or school community?	• Identify your use of deficit language—words, terms, labels that focus on lack, loss, or a negative perspective—when describing your children's mathematics ability, effort, or performance, and commit to shifting your speech to an assets- or strengths-based approach. • Commit to eliminating deficit language. Become a strength finder by seeking out at least one asset in each of your children.	Reframe language and labels about children, i.e. shift from "struggling children" to "children needing additional support to access grade-level mathematics."

(*Continued*)

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Table 2.1 *"Checking" My Biases (Continued)*

Notice & Wonderings	Actions to Consider	What It Looks Like in the Mathematics Classroom
My Relationships Who do you invite into your space?	• Learn about your children's backgrounds, interests, funds of knowledge, and strengths. • Read Chapter 3, Windows: Understanding Your Children	Have your children complete a "Math Autobiography" or survey where you gather information about their interests, strengths, and needs inside and outside the mathematics class. Review children's responses and be intentional about using the information to build connections to mathematics.
My Responses How do your biases manifest in your interactions with the children you teach?	• Monitor your classroom interactions (i.e., responding to questions, providing feedback, redirection statements).	Respond/provide feedback to all children that shows that they are valued as thinkers, doers, and learners of mathematics.

As you look in the mirror and reflect on your identities and do the work of identifying your biases and implicit biases, we now turn your attention to whiteness—how it might show up, the role you and other educators might play (often unconsciously) in centering it, and the importance of decentering whiteness to establish a TMSJ environment.

How Does Whiteness Show Up in the Mathematics Classroom?

In an effort to be relatively generic, mathematics problems often center on an "average" middle-class context, describe students who likely identify as white and have European-derived names, and describe generic activities many children may not be exposed to or interested in. This generalizing and whitewashing results in many students never seeing their culture, their race, or their community represented in the mathematics they are learning. It doesn't help them see how math is for them. It also does a disservice to white children who never have a chance to learn the deep, rich, and complex history and origins of mathematics, and it reinforces whiteness as the norm. Some curriculum publishers try to shift this by changing the names of characters in story problems to sound more "ethnic" or changing the object of a problem, such as changing from dividing up sandwiches or pizza to dividing up burritos to investigate fractions (which is a problem because no one can eat the middle third of a burrito). Though well-intentioned, this, in many

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ways, actually does *more* of a disservice because it often reinforces stereotypes and lacks any depth, authenticity, or meaning to the children in *your* classroom. Similarly, many of the generic posters or other images teachers put on walls depict math as the domain of old, white, men. Many teachers are engaging in a more active effort to disrupt these norms by changing the contexts in their textbook problems to be more representative of their students; some teachers will put posters on their walls of mathematicians who are Black, Latin@, women, or queer to help broaden the ideas around what math is and who it is for. Take a moment to complete the Check In as you reflect on your school and classroom settings.

Check In

What do the artifacts in your classroom look like? If you walk down the hallways or passages of a school in your area, what do you see? Where might your own biases affect how mathematics gets represented in your classroom?

DO I CONSCIOUSLY OR UNCONSCIOUSLY CENTER WHITENESS IN MY MATHEMATICS CLASSROOM?

When teaching mathematics for social justice, educators must ask themselves, "Do I consciously or unconsciously center whiteness in my mathematics classroom?" Before answering this question, we offer a definition of whiteness. DiAngelo (2011) defines whiteness not as just the identity components of race and ethnicity but as a multitude of processes and practices that include basic rights, values, beliefs, perspectives, and experiences and that center and consistently benefit those who identify as white. Now let's look critically at our own mathematics classroom to determine whether and how we are consciously or unconsciously centering whiteness. There are many ways in which multiple identities are often elevated or stifled in our classrooms, but one of the most critical ones we must first address is the dominance of whiteness.

When teaching mathematics for social justice, educators must ask themselves, "Do I consciously or unconsciously center whiteness in my mathematics classroom?"

Addressing whiteness is an ongoing journey, and success doesn't mean tackling all aspects perpetuating whiteness in your classroom at once. Instead, it's about starting urgently and persistently addressing each indicator of whiteness one step at a time, in an ongoing process. This leads us to the question, "What happens if one *does* or *does not* address whiteness in their mathematics classroom?"

- **If one does not address** whiteness in the mathematics classroom, inequities in education and in society will remain a perpetual cycle. Historically excluded children will continue to experience subpar mathematics learning experiences.

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- **If one addresses** whiteness in the mathematics classroom, then the environment begins to become more inclusive, and children see themselves within the experience. This leads to an increase in children's engagement in mathematics, which in return will improve their academic achievement.

WHY IS IT IMPORTANT TO DECENTER WHITENESS?

TMSJ aims to foster equity in math classrooms and inspire children to pursue social justice in their schools and communities.

Traditional U.S. mathematics education has long reflected the dominant culture of white, European backgrounds, consciously or unconsciously shaping educators' approaches (Cintron et al., 2001). TMSJ aims to foster equity in math classrooms and inspire children to pursue social justice in their schools and communities. The approach doesn't solely focus on race or ethnicity but addresses and rebalances power dynamics related to race. It strives for inclusive learning experiences that embrace diverse identities (Ladson-Billings, 2021), crucially decentering whiteness. TMSJ aligns with culturally relevant and responsive teaching, aiming to create equitable math classrooms that catalyze positive change.

Peggy McIntosh (1998), a feminist and anti-racism activist, defines whiteness as beyond racial identity, emphasizing its historical elevation of white people and their societal advantages over nonwhite individuals globally. Over centuries, racism and white supremacist ideologies have served to elevate white people—socially, economically, politically, culturally, and in other ways—over nonwhite people around the globe. In the United States and elsewhere, whiteness allows white children and adults to have their lives shaped, consciously or unconsciously, via unearned privilege or protections solely because of their skin color. TMSJ deliberately displaces whiteness from its customary role in math education, exposing the unjust advantage of skin color in the classroom while offering fair opportunities for learners from various cultures and identities to engage with mathematics in their daily lives and communities.

TMSJ integrates culturally informed math principles and practices from nonwhite cultures into everyday lessons, laying the groundwork for teaching math through a lens of social justice.

In the U.S., whiteness historically dominates, akin to baseball and apple pie, but decentering it allows educators to understand nonwhite children's identities better and create more inclusive classroom experiences. TMSJ integrates culturally informed math principles and practices from nonwhite cultures into everyday lessons, laying the groundwork for teaching math through a lens of social justice.

HOW CAN I DECENTER WHITENESS IN MY CLASSROOM AND MAKE ROOM FOR OTHER IDENTITIES?

The process of decentering whiteness starts by examining how much your school and classroom focus on white perspectives. Table 2.2 offers a set of questions and indicators to guide this evaluation. The downloadable tool helps assess the degree of white-centric content in images, math tasks, and behaviors, providing a way to capture this information.

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ACT

1. Add your key takeaways and next steps to your TMSJ Action Plan.
2. Complete the Try This: My Biases for your remaining four identity markers and identify your biases that need to be monitored.

My Biases

- Review your responses to Try This: Identities and Beliefs and select one identity marker and its belief statements and record them in the chart below.
- Capture your thoughts for each prompt as you consider the impact of your biases on who you teach, where you teach, and what you teach.
- Review your responses and identify (underline, circle, or highlight) where you are not able to be "neutral" because you have a strong preference or aversion. These are your biases!

My Identity Marker	Beliefs About My Children
*What are your preferences (likes) and **aversions** (dislikes) about . . .*	
Who you teach (children & families)	
Where you teach (school and school community)	

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My Identity Marker	Beliefs About My Children
What you teach (grade levels, mathematics courses/ content)	
*In what ways do you associate (group) or **categorize** (label) . . .*	
Who you teach (children & families)	
Where you teach (school and school community)	
What you teach (grade levels, mathematics courses/ content)	
*What are you stereotypes (beliefs) and **prejudices** (attitudes) . . .*	
Who you teach (children & families)	
Where you teach (school and school community)	
What you teach (grade levels, mathematics courses/ content)	

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Where to Next?

The question we are most often asked when presenting on TMSJ is "When can I start incorporating TMSJ into my children's classroom experiences?" Our answer: You can start immediately! Incorporating TMSJ into your mathematics lesson plans is very much like learning to ride a bicycle. There is no perfect time to start, but the process can be very challenging at first. Finding your balance and learning to use the gears (if any) and brakes may be hard. You may encounter several bumps in the road, but with time and practice, you will see improvements and both you and your children will "get the hang of it." Once you get started, you will continually progress and improve. You will probably find yourself trying new, previously unimaginable things in your mathematics classroom and realize success after success as your children react and respond to TMSJ instruction. The next step in your journey is found in Chapter 3, where you will look through some windows to consider the children in your own classrooms.

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