

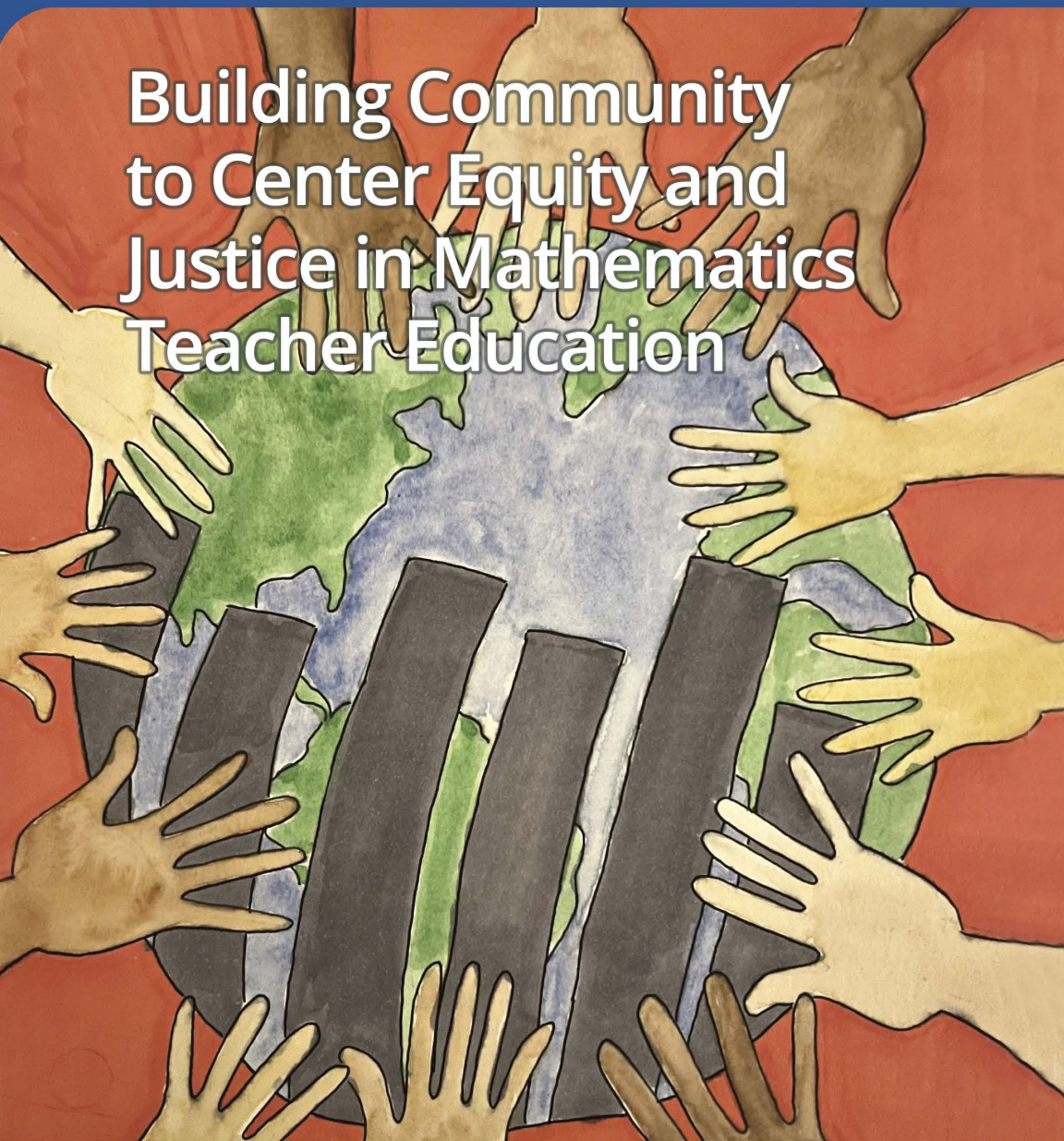


AMTE Professional Book Series

Volume 6

Series Editor: Babette M. Benken

# Building Community to Center Equity and Justice in Mathematics Teacher Education



Edited by Courtney Koestler and Eva Thanheiser

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# **Building Community to Center Equity and Justice in Mathematics Teacher Education**

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A volume in  
*The Association of Mathematics Teacher Educators (AMTE)  
Professional Book Series*  
Babette M. Benken, *Series Editor*

**The Association of Mathematics Teacher Educators (AMTE)  
Professional Book Series**

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Babette M. Benken, *Series Editor*

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# **Building Community to Center Equity and Justice in Mathematics Teacher Education**

**Volume 6**

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*Edited by*

**Courtney Koestler**

*Ohio University*

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*Portland State University*

*With Section Editors*

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# FOREWORD

We are excited to present Volume 6 of the Association of Mathematics Teacher Educators (AMTE) Professional Book Series, *Building Community to Center Equity and Justice in Mathematics Teacher Education*. With over 1,000 members, AMTE focuses on preservice teacher education and the professional learning and development of K–12 teachers in mathematics. Therefore, examining ways to build community to center conversations and action on equity and justice in mathematics teacher education is key to our mission. As the leaders in the largest professional organization focused on the improvements of mathematics teacher education, the AMTE Board is enthusiastic about this volume because it is an opportunity to share experiences and push the field forward on the important task of centering our work on equity and justice. Furthermore, this volume is very timely as it supports AMTE long-term goals for 2024–2028, in particular Goal 1: Challenge and support mathematics teacher educators to engage with and take action on issues of social and racial justice in their work.

This AMTE book collects experiences from mathematics teacher educators on how they build community to center conversations and actions on equity and justice in mathematics teacher education in different kinds of settings. The 75 contributing authors represent a wide range of mathematics teacher educators including those who have served as leaders in the field in multiple ways for many years as well as graduate students. Authors include graduate students, higher education faculty and administrators, and professional development facilitators.

In this Volume 6 of AMTE's Professional Book Series, the collection of 24 cases and four introductory chapters is organized into three sections according to the communities that provide the context for the case, namely: prospective teachers, practicing teachers, or graduate students and mathematics teacher educators. Readers of this book will learn about tools to create community with prospective and practicing teachers, ideas to establish or maintain different kinds of groups, several definitions of community used by the authors, and the different ways in which the authors use equity and/or justice to frame their work.

The AMTE Board greatly appreciates the chapter authors who shared their work and expertise with the mathematics education and teacher education communities. We also want to thank the book editors, Eva Thanheiser and Courtney Koestler, for their passion and dedication that helped bring this important work to fruition. Thanks also go to the AMTE Professional Book Series editor and Past Vice President for Publications Babette Benken, who supported all aspects of the process. Finally, many thanks to the reviewers, which included authors, several board members, and members of the Publications Division (i.e., leadership and the Publications Review Committee), who volunteered time to ensure this volume would be an asset to our field.

We are excited that AMTE is able to share the ideas contained in this volume with the mathematics teacher education community. We hope you find it useful in your own practice and research and that this volume will prove to be an essential resource for mathematics teacher educators, as we all work to reflect and act on equity and social justice in mathematics teacher education.

Yours in Service,

**Enrique Galindo**

President, Association of Mathematics Teacher Educators

**Farshid Safi**

President-Elect, Association of Mathematics Teacher Educators

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The book editors would like to sincerely thank the contributing authors, without whom this book would not be possible. We appreciate so much about the authors of this volume—the diversity of their identities, backgrounds, experience, and perspectives, their commitment to their colleagues and students, their sincerity, and the intention and purpose they bring to their work.

Next, we would first like to thank the section editors Crystal Kalinec-Craig, Naomi Jessup, and Anita Wager. They, along with Cathery Yeh, were part of our critical friends group that led to the development of this book. We appreciate these colleague–friends so much for their support, insight, and friendship.

We also want to be sure to thank the Association of Mathematics Teacher Educators Publications Division, especially Series Editor Babette Benken, Board Liaison Kristin Lessig, and members of the Publications Review Committee (Amanda Meiners, Kelly Edenfield, Meghan Shaughnessy, Tina Mitchell), who went above and beyond to assist with the reviews of the manuscripts. It is important to note that all authors who submitted final manuscripts also participated in reviewing submissions as well.

A special thank you to artist Hannah Kennedy who created the cover art for the book.

And, last, but not least, we would like to thank Brenda Rosencrans who helped copyedit this volume. We want to acknowledge the expertise she brought in copyediting and mathematics education.

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## CHAPTER 1

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# **BUILDING COMMUNITY TO CENTER EQUITY AND JUSTICE IN MATHEMATICS TEACHER EDUCATION**

## **An Introduction**

**Eva Thanheiser**  
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In the early months of the pandemic in the Summer of 2020, we found ourselves in pursuit of *community*, a space where we could find support as we engaged in the work of exploring, understanding, and engaging in equity and justice work in our teaching and research. As part of this pursuit, we began meeting online with a “critical friends” group with Crystal Kalinec-Craig, Naomi Jessup, Anita Wager, and Cathery Yeh to discuss our scholarship

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centered on diversity, equity, and justice in mathematics teacher education. Each week when we met with our critical friends, we shared both about professional (and personal) struggles and joys. We saw it as a space to connect and support each other as we struggled and thrived, and often noticed the similarities and differences of our work in our unique contexts. It was in this place that we felt like we had a community to safely share what we were doing in our courses and professional development work. It was also in this critical friends group that we began working on individual and joint teaching and research projects, including the eventual proposal that the two of us submitted for this book.

Our vision for this book was a volume that contains clear and practical examples and ideas of how to *build community to center conversations and action on equity and justice in mathematics teacher education*. In the initial call, we asked authors to clearly define community and how it was integral to supporting equity and justice in their work. That said, when we began to read initial submissions, we were amazed by the diversity and variety among the authors and the kinds of cases that they wrote. For example, some author teams represent long-term collaborations devoted to equity and justice work; other authors are newer to this focus. Some cases center on specific activities; other cases describe approaches or design principles to this kind of work. Throughout the process, all of the cases have been reviewed by us (the editors), the section editors, members of the AMTE Publications Division, and other authors in this book.

From the focus of the cases to the ways that authors conceptualized community, equity, and justice in their work, the cases include multiple perspectives and insights from a variety of contexts. In this introduction to the volume, we begin by providing an overview of the various activity types and foci included in the cases. Then, we explore the various definitions of *community* that authors use and then provide an analysis of the ways that authors use *equity* and/or *justice* to frame their work.

## FOCI ACROSS CASES

Looking across the cases, we identified seven primary foci (see [Table 1.1](#)). The greatest number of cases (50%) focus on tools to create community with prospective and practicing teachers. Other foci include: establishing and/or maintaining reading, discussion and/or research groups, with attention to either how to start or run a group or on identity sharing; implementing equitable pedagogy; leveraging professional development settings to build community through collaboration or micro credentialing; designing principles to create community; creating counter spaces; and developing an equity statement.

**TABLE 1.1 Foci of the Cases**

<p><b>Tools to create community with prospective and practicing teachers (12 cases)</b></p> <ul style="list-style-type: none"> <li>• Conversation Grids (Case 9)</li> <li>• Use of poetry (Case 18)</li> <li>• Care through co-constructing community agreements, enacting listening routines, developing critical consciousness (Case 10)</li> <li>• Opportunity to Dissent (Case 3)</li> <li>• Slow Reveal Graphs (Case 2)</li> <li>• Mathematics Autobiography and Critical Reflection (Case 5)</li> <li>• Productive Struggle and Joy, Alternate Base Activity and Mayan Activity (Case 4)</li> <li>• Community Journals (Case 6)</li> <li>• Labor Based Grading (Case 8)</li> <li>• Equitable Noticing (Case 1)</li> <li>• Broken Circle Task (Case 11)</li> <li>• Low Floor, High Ceiling Tasks (Case 13)</li> </ul>
<p><b>Creating/maintaining a reading/discussion/research group (4 cases)</b></p> <ul style="list-style-type: none"> <li>• How to start/run a group (Cases 20, 21, &amp; 22)</li> <li>• Getting to know one another through Identity Sharing (Case 23)</li> </ul>
<p><b>Tools to implement equitable pedagogy (2 cases)</b></p> <ul style="list-style-type: none"> <li>• ICUCARE Equity Framework (Seda &amp; Brown, 2021) (Case 19)</li> <li>• Acknowledgement, Action, and Accountability (AAA) structure (National Council of Supervisors of Mathematics and TODOS: Mathematics for ALL [(NCSM &amp; TODOS)], 2016) framework to support Critical Praxis (Case 16)</li> </ul>
<p><b>Professional development examples (3 cases)</b></p> <ul style="list-style-type: none"> <li>• Collaboration across groups (elementary and special education teachers) (Case 12)</li> <li>• Collaborative observations (Case 14)</li> <li>• Micro Credentialing (Case 15)</li> </ul>
<p><b>Design Principles (1 case)</b></p> <ul style="list-style-type: none"> <li>• Design principles to create community (Case 7)</li> </ul>
<p><b>Developing an equity statement (1 case)</b></p> <ul style="list-style-type: none"> <li>• Creation of an equity statement (Case 24)</li> </ul>
<p><b>Counterspaces (1 case)</b></p> <ul style="list-style-type: none"> <li>• Creation of counterspaces (Case 17)</li> </ul>

## DEFINING COMMUNITY ACROSS CASES

Community is often centered in the context of social justice education work, but it is rarely defined (Bettez & Hytten, 2013; Selznick, 1992). As noted above we asked all case authors to explicitly define how they are using the term *community* specifically in the context of their work related to equity and justice in mathematics teacher education. Across the cases, *community* is defined in a variety of ways, with all cases beginning with a group of people. These groups of people include teacher candidates in a classroom, mathematics teacher educators along with the teacher candidates

in the classroom, practicing teachers across various contexts (e.g., same school, various schools, PD settings), teachers across learning and teaching contexts (e.g., learning community and teaching community), and mathematics teachers and mathematics teacher educators across settings.

In addition to describing who is participating in the community (the people), authors also define community and community building differently. We build our summary here adapting Westheimer's (1998) work on conceptualizing the central features of communities related to teachers' professional communities. Westheimer (1998, p. 17) describes five aspects: *interaction and participation* (people have many opportunities and reasons to come together in deliberation, association and action); *interdependence* (associations and actions both promote and depend on mutual needs and commitments); *shared interests and beliefs* (people share perspectives, values, understandings and commitment to common purposes); *concern for individual and minority views* (individual differences are embraced through critical reflection and mechanisms for dissent and lead to growth through the new perspectives they foster); and *concern for meaningful relationships* (interactions reflect a commitment to caring, sustaining relationships). We also added a sixth theme of *belonging* (perceived sense of social support and feelings of connectedness; Strayhorn, 2018) to include two cases that center on belonging which was not yet captured in Westheimer's framework.

In Table 1.2 we share our categorization of the definitions of community included in the cases. It is worth noting that some cases are represented more than once in Table 1.2, as some definitions included multiple components of our framework. Each case showed up in at least one category. The

**TABLE 1.2 Definitions of Community in the Cases**

**Interaction and participation**

- “A group of people who are socially interdependent, who participate together in discussion and decision-making” (Bellah et al., 1985, p. 133). (Case 20)
- Regular interactions/collaborations (Wenger & Trayner, 2015). (Cases 21 & 24)
- Develops shared ways of doing things (shared practices) (Wenger & Trayner, 2015). (Case 24)
- Sustained social interactions among a group of people based on relatively shared expectations and goals (Almgren, 2001; Bradshaw, 2008). (Case 3)
- Common and continuing organization (Rogoff, 2003) (Case 2)
- Actively engage in learning from one another (Dana Center) (Case 7)
- Relationship building (Case 11)
  - Nasir and her colleagues (2014) state, “The work of building a different kind of professional community and enacting a new pedagogical vision of math education is intertwined with and supported by the relationships we build with each other” (p. 5).
- Sustained interactions (Case 12)
- A teacher's learning community is a space where they can work with others to self-reflect, generate ideas to implement . . . , and take action—plan for and implement those ideas; that is, engage in critical praxis. (Case 16)

(continued)

**TABLE 1.2 Definitions of Community in the Cases (continued)****Interdependence**

- Socially interdependent (Case 20)
- We focus on developing learning communities characterized by interdependence – where individuals are responsible for not only their own learning but also that of their peers, no one individual can complete the task alone, and people rely on one another because everyone has something to offer and something to learn. (Case 11)

**Shared interests and beliefs**

- Sharing goals/interests/concerns: (Etzioni, 1996, 2000; Wenger & Trayner, 2015)
  - Learning about and then disrupting social inequities (Case 18)
  - Unity of purpose without assumption of uniformity (Case 22)
  - Addressing identity and power (Case 22)
  - Shares a concern, passion, or desired outcome (Wenger & Trayner, 2015). (Case 24)
  - Commitment to social justice (Case 23)
  - Promote productive relationship with the content, the teaching of mathematics, and with the students, PSTs (Lampert, 2001). (Case 9)
  - Support the well-being of others around racial justice and equity in mathematics (hooks, 2003). (Case 5)
  - Vigilant awareness of the work we must continually do to undermine all the socialization that leads us to behave in ways that perpetuate domination (hooks, 2003, p. 36). (Case 5)
  - Engage in new forms of collective mathematical activity that are grounded in dignity, joy, and solidarity, this creates openings for disruptions to dominant narratives that allow new ways of being to become possible (Yeh & Rubel, 2020). (Case 4)
  - Provide space to interrogate dominant narratives and to foster our collective imagination that a more just future is indeed possible. (Case 4)
  - Common purpose (Case 6)
  - Interpersonal relationships and relationships with academic content
  - Critical examination of discourse in a disciplinary space (Case 1)
  - Openness to ideas and willingness to engage with each other in authentic and critical ways (Case 1)
  - Shared commitment to learning and intellectual development so we can better the world and our experiences in it. (Case 11)
  - Collective purpose of deeper learning about a particular domain, which in our case constituted inclusive and just mathematics teaching and learning (Tan & Thorius, 2019). (Case 12)
  - Joint enterprise, with a shared repertoire of experiences, tools, and ways of addressing problems (Case 13)
  - What counts as mathematical knowledge and skill; noticing, naming, and disrupting patterns of oppression in mathematics classrooms; and building collective knowledge of both teaching practice and mathematical knowledge for teaching. (Case 14)
- Shared values/beliefs/practices (Cases 2, 7, & 21)
- Sharing values/norms/meanings (Etzioni, 1996, 2000). (Case 23)
- Sharing history/identity (Etzioni, 1996, 2000; Rogoff, 2003) (Cases 2 & 23)
- Shared experiences
  - Share experiences (Cases 10 & 21)
  - Relationships and shared experiences within our course (Allen et al., 2018). (Case 6)
- Shared trust/belonging/empathy/care (Cases 10 & 15)
- Shared ideas, attitudes, feelings, and fellowship that develop among members of the classroom. (Case 8)

*(continued)*

**TABLE 1.2 Definitions of Community in the Cases (continued)**

<p><b>Concern for individual and non-dominant views</b></p> <ul style="list-style-type: none"> <li>• Appreciation of and cooperation within differences <ul style="list-style-type: none"> <li>– Welcoming disagreements (Case 20)</li> <li>– Mutual support and respect (Case 21)</li> <li>– Mutual respect and appreciation of and cooperation within differences. (Case 23)</li> <li>– Disagreements are worked through. These interactions are dynamic, evolving through time, simultaneously including various levels of collaboration, discord, and engagement (Achistein, 2002). (Case 3)</li> </ul> </li> <li>• Acknowledging own positionality and relation to the work (Case 18)</li> <li>• Members' individuality, humanity, and perspectives are valued as instrumental contributions to a common goal (Case 22)</li> <li>• Meaningful connections (Case 10)</li> <li>• People from a variety of sociocultural contexts (hooks, 2003) (Case 5)</li> <li>• We each feel seen and valued as our full selves in all our complexity. (Case 4)</li> <li>• Common purpose despite differences and complexities that may exist. (Case 6)</li> <li>• All people are valued for their humanity, and everyone's identities, cultures, and abilities are seen as resources (Case 11)</li> </ul>
<p><b>Concern for meaningful relationships</b></p> <ul style="list-style-type: none"> <li>• Sharing practices that both define and are nurtured by the community (Bellah et al., 1985; Wenger &amp; Trayner, 2015). (Case 20)</li> <li>• Teacher-student relationships are fluid, humanely equitable, teacher demonstrates a connected with all students, students are responsible for their own and each other's learning (Case 19)</li> <li>• Learning from each other (Case 21)</li> <li>• Community of practice (Lave &amp; Wenger, 1991; Wenger, 1998; Wenger &amp; Trayner, 2015) (Case 24)</li> <li>• Web of relationships (Case 23)</li> <li>• Intersection between relationships and humanity (Case 9) <ul style="list-style-type: none"> <li>– Habermas (1985) "Theory of Communicative Action," in which individuals within a space engage in a mutual understanding or a common goal through an exchange of reasons and arguments to resolve issues.</li> </ul> </li> <li>• Collective responsibility for each other's well-being and learning (Case 10)</li> <li>• We focused on interpersonal relationships and relationships with academic content (Case 6)</li> <li>• Relationships are essential to community (Case 11)</li> <li>• A community of practice accounts for the cultural, social, and historical aspects of learning (Lave, 1993) (Case 12)</li> </ul>
<p><b>Belonging</b></p> <ul style="list-style-type: none"> <li>• Habermas (1985) "Theory of Communicative Action," in which individuals within a space engage in a mutual understanding or a common goal through an exchange of reasons and arguments to resolve issues. (Case 17)</li> <li>• Block's definition of belonging as acting "as an investor, owner, and creator" of the space and "to be welcome, even if we are strangers" (Block, 2018). (Case 13)</li> </ul>

most prominent themes across the cases are: *shared interests and beliefs* (13 cases), *concern for individual and non-dominant views* (11 cases), and *interaction and participation* (9 cases), with *interdependence* and *belonging* being less explicit in the definitions (each only represented in 2 cases).

## DEFINING EQUITY AND JUSTICE ACROSS CASES

We use [Gutiérrez’ \(2012\)](#) framework of a focus on access and achievement along the dominant axis and a focus on identity and power along the critical axis to examine how the various cases attended to equity and justice. Some cases combine the terms equity and justice, and some differentiate them. Sometimes the differentiation is along the dominant axis (access and achievement) as equity and the critical axis (identity and power) as justice, other times it is not. In total, eight cases focus on the dominant axis, five cases focused on the critical axis, and the remaining 11 cases focused along both axes. In [Table 1.3](#) we categorize the cases to highlight the various ways equity and/or justice were defined. We use direct quotes from each case to share their definition.

<b>TABLE 1.3 Definition of Equity and Justice Across the Cases</b>	
<b>Access and/or achievement (along the dominant axis)</b>	
Equity	<ul style="list-style-type: none"> <li>• Through our work together we developed our shared definition of equity in mathematics education which centers access to high quality mathematics curriculum, instruction, and assessment for all students. . . . We eventually defined equity as not about treating everyone exactly the same, but rather, treating each individual with the same level of respect and commitment to their success. (<a href="#">Case 24</a>)</li> <li>• 2014 National Council of Teachers of Mathematics (NCTM) position statement on access and equity: “creating, supporting, and sustaining a culture of access and equity requires being responsive to students’ backgrounds, experiences, cultural perspectives, traditions, and knowledge when designing and implementing a mathematics program and assessing its effectiveness” (<a href="#">NCTM, 2014, p. 1</a>). (<a href="#">Case 12</a>)</li> </ul>
Equity and Justice	<ul style="list-style-type: none"> <li>• We define equitable mathematics instruction as instruction that provides the opportunity for each student to receive “what they need to develop to their full academic and social potential” (<a href="#">National Equity Project, n.d.</a>). This equity definition extends to our definition of educational justice: “making adjustments to the system so that access to resources and guarantees for educational success are provided for ALL” (<a href="#">Smith-Woofter et al., 2022, p. 526</a>). We firmly believe that equitable mathematics instruction and educational justice can only be achieved in the context of community. (<a href="#">Case 19</a>)</li> <li>• We draw upon <a href="#">AMTE’s (2015)</a> definition of equity as providing access to high quality learning opportunities, inclusion for all learners, and respectful and fair engagement with others. By focusing on a sense of belonging, we particularly draw upon the inclusion for all learners’ piece. We draw upon <a href="#">Bell’s (1997)</a> goal of social justice education as an approach for combating oppression through enabling all learners to have equitable opportunities to learn, to be seen, and to be able to fully participate. When equity and justice are upheld, individuals from diverse backgrounds feel welcomed. (<a href="#">Case 21</a>)</li> </ul>

(continued)

<b>TABLE 1.3 Definition of Equity and Justice Across the Cases (cont.)</b>	
Equity and Justice (cont)	<ul style="list-style-type: none"> <li>• Equity requires “high expectations and strong support” (<a href="#">National Council of Teachers of Mathematics, 2000, p. 11</a>) and justice is the quality of being fair and reasonable. (<a href="#">Case 9</a>)</li> <li>• I define equity using the Association of Mathematics Teacher Educators (AMTE’s) (2015) Equity Statement: “access to high quality learning experiences, inclusion for all learners, mathematics educators, and mathematics teacher educators; and respectful and fair engagement with others” (p.1). Justice involves issues of fairness and use of sound reasoning, both within the classroom environment and in learning how to use mathematics as described by Gutstein (2006) “to investigate, make sense out of, and possibly take action on important social issues in the world” (p.3). (<a href="#">Case 7</a>)</li> <li>• Promote equity and justice for all who come through our doors. In doing this, we, as educators, are helping our preservice teachers to develop personal efficacy and cognizance to promote the equitable treatment of others (<a href="#">Darling-Hammond &amp; Oakes, 2019</a>). Developing democratic agency in preservice mathematics and equity-focused classrooms requires individuals to engage in discussions, create arguments, make judgments, and consider other world views (<a href="#">Bergem &amp; Pepin, 2013</a>). (<a href="#">Case 6</a>)</li> <li>• Equity is “access to high quality learning experiences; inclusion for all learners . . . ; and respectful and fair engagement with others” (<a href="#">AMTE, 2015, p. 1</a>) and pursue justice, “a combination of fairness and opportunity” (<a href="#">Learning for Justice, 2020</a>). (<a href="#">Case 16</a>)</li> </ul>
<b>Power and/or identity (along the critical axis)</b>	
Equity	<ul style="list-style-type: none"> <li>• We define equity as the transformative process through reflective disclosure for individuals to gain a deeper understanding of their multifaceted identity, engage in generative dialogue with colleagues who share similar stories, and to propel authentic, meaningful relationships and a greater sense of agency in their professional lives (<a href="#">Kompridis, 2011</a>). (<a href="#">Case 17</a>)</li> </ul>
Justice	<ul style="list-style-type: none"> <li>• Full justice exists when all people are seen (deeply) and valued for who they are with their complex identities and cultures . . . In a world with full justice, people love and are loved freely. People are respected in ways that honor their cultural and behavioral practices. (<a href="#">Case 18</a>)</li> <li>• We define equity and justice-oriented, critical work as work that focuses on inclusivity, authenticity, and action (<a href="#">Case 23</a>)</li> <li>• This includes ensuring that students of color have opportunities and support to share their thinking (<a href="#">Shah &amp; Lewis, 2019</a>) and have their ideas taken up by the teacher and classmates in ways that position them as capable (<a href="#">Langer-Osuna &amp; Esmonde, 2017; Turner et al., 2013</a>). (<a href="#">Case 14</a>)</li> </ul>
Equity and Justice	<ul style="list-style-type: none"> <li>• Our goals, therefore, also included challenging long-held and often racialized perceptions about who can do mathematics and what constitutes success by building new collective visions of mathematics teaching and learning. (<a href="#">Case 13</a>)</li> </ul>
<b>Both access and/or achievement (along the dominant axis) and power and/or identity (along the critical axis)</b>	

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