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Running Head: ENACTING EQUITY IN RESEARCH

Activities for Enacting Equity in Mathematics Education Research

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Abstract

This interactive essay serves as a research companion to support the reader in thinking and talking about equity in research design, implementation, and reporting in post-secondary mathematics education. The terms equity, diversity, inclusion, and social justice have entered the mathematics education research lexicon. Yet, researchers continue to face significant challenges in gaining a nuanced understanding of the various ideas associated with these words and how those ideas are consequential for research. The authors describe and illustrate tools for making sense of (and making sense with) “equity” as an essential component of research. The tools focus on self-aware communication, an essential component of enhancing mathematics education research with an equity lens. The authors offer a set of reflective questions, outline the call for courageous conversations in mathematics education research, and provide a tool for engaging in such conversations. The piece closes with suggestions for further reading and prompts for related challenging conversations about equity in rigorous research in post-secondary mathematics education.

Keywords Equity · Social justice · Courageous conversations

Activities for Enacting Equity in Mathematics Education Research

Race.

Yes, that kind, the White and Black and Red and Yellow and Brown kind.

Go ahead.

Experience the shock.

Take a moment for a long, uncomfortable silence
as you touch the third rail in American mainstream culture.

Breathe.

Here it comes again.

Race.

You know, of course, once “race” comes out that “racism” is not far off.

Hovering, stage-right, there it is: racism.

Its companions join from stage-left:

sexism,

ableism,

genderism,

ethnocentrism,

classism,

fill-in-the-blank-ism

They come together when we consider

Social justice.

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Rather than a report of empirical research, this piece is a synthesis of ideas in an interactive essay. The goal is to support readers in the intellectual work of attending to equity as a core aspect of research in undergraduate mathematics education (RUME). We (the authors) seek to provide opportunities to dig deeper into a line of thought about equity and mathematics education research that has been around for a while in primary and secondary education (see, e.g., *Journal for Research in Mathematics Education* special issues on equity edited by D’Ambrosio et al., 2013 and Tate & D’Ambrosio, 1997 and references therein; Gutiérrez 2012, 2013; Nasir 2016). These ideas are also gaining ground in RUME (Adiredja, Alexander, & Andrews-Larson 2016; Aguirre & Civil 2016; Davis, Hauk, & Latiolais 2009).

Given the significance of mathematics as a gatekeeper in success (in college and beyond), consider the following question, one that opens the door to attending to equity: Why might it be important in a classroom study to pay attention to how and why students are hidden or ignored in calculus class (or, in abstract algebra)? The question is an opening for enormous learning by researchers. Moreover, how are the answers of consequence for researcher understanding of instruction, cognition, and the mathematics learning opportunities among students who are *not* ignored/hidden (as well as among those who are)? Here are opportunities for colossal failure and enormous learning by researchers. The power and influence of mathematics at the college level

makes finding ways to engage in such research considerations particularly important in the RUME community.

Mathematical training has prepared researchers in undergraduate mathematics education for this challenging work. For those who have done advanced mathematics, negotiating the inevitable failures on the way to generating an elegant proof are well known. Some may ask: are the emotional stakes really that high in creating a proof? Mathematicians will say yes. For others, a comparable situation might be the personal and professional status that rides on completing and reporting well on a piece of educational research.

This essay is intended to encourage personal and collective reflection, discussion, and action. To situate the reader, the first section is a set of reflective questions. The next section expands on the ideas in the questions, giving background on recent developments in mathematics education related to equity and justice. Subsequent sections offer some tools to support engagement in activities that acknowledge and address inequity. These include preparation for and participation in challenging conversations. The essay closes with a set of questions aimed at acknowledging, acting, and being accountable for next steps as researchers prepare for the challenges ahead.

Reflective Questions

Take a moment to write a few words in response to each of the following:

1. What research have you read/seen/heard that contributes to understanding equity in undergraduate or other post-secondary mathematics teaching and learning? How do you know it was about addressing equity? How did the authors define “equity” (explicitly or implicitly)?
2. What have you seen/read that offers strategies for reducing inequity in experience or achievement in undergraduate or other post-secondary mathematics education? How do you know it was about addressing inequity? How did the authors define “inequity” (explicitly or implicitly)?

Being Explicit About Equity

It is difficult to understand something one has never seen. For many, equity is mythical. In what ways is equity a destination? ... a journey? ...something else? Explicitly, at this moment in the elementary, secondary, and post-secondary educational research and practice communities (and more broadly) there is not a well-defined, crisp, and shared definition of equity (Aguirre, et al. 2017; Gutiérrez 2012). Given this absence, for the purposes of communication, one might start with the Merriam-Webster dictionary and say, equity is fairness. This is a starting point that begs questions: What is fairness? Who decides? It is also important to distinguish between equity and equality: equality is everyone having the same thing while equity is based on a person’s current situation and goals, and means people have what they need to grow from the one to the other in a given context (e.g., social, political, economic environments). Also, equity can be partially defined by its complement: inequity. If equity is evidenced by the absence of disparities (e.g., membership in a group that has been historically disadvantaged is in no way correlated to access to opportunities, attainment of educational outcomes, or achievement of life goals), then monitoring change in disparity is a way to measure progress towards equity (by measuring reduction in *inequity*).

The word equity is often used near words such as diversity, inclusion, and social justice. The distinctions between equity, diversity, and inclusion are clear. Diversity is quantitative - a

measure of the variation of particular characteristics of interest across people or groups. Inclusion (in a group or structure), may, like diversity, provide a metric related to equity in that inclusion "involves an authentic and empowered participation" (Annie E. Casey Foundation 2014, p.5). At best, however, inclusion may be necessary but is not sufficient for a situation or process to be equitable. Social justice, more broadly defined, is discussed below in the context of two recent publications.

Background

In 2016 two organizations based in the U.S., TODOS: Mathematics for All and the National Council of Supervisors of Mathematics (NCSM), issued a position paper entitled *Mathematics Education Through the Lens of Social Justice: Acknowledgement, Actions, and Accountability*. In it, social justice in mathematics education included “fair and equitable teaching practices, high expectations for all students, access to rich, rigorous, and relevant mathematics, and strong family/community relationships to promote positive mathematics learning and achievement” (p. 1). In a related piece, Aguirre and colleagues (2017) asserted researchers have a responsibility to challenge the ways in which “power, privilege, and oppression tacitly and explicitly play a role in research programs” (p. 126). The authors also noted that researchers have a choice in moving from the status quo to intentional collective responsibility for doing “the right thing for current and future generations” (p. 125). Aguirre and colleagues organized their suggestions as four political acts:

- Political Act 1. Enhance Mathematics Education Research with an Equity Lens
- Political Act 2. Acquire the Knowledge Necessary to Do Genuine Equity Work
- Political Act 3. Challenge the False Dichotomy Between Mathematics and Equity
- Political Act 4. Expand the View of What Counts as “Mathematics”

In this essay, the focus is Political Act 1. At the heart of Political Act 1 is the question of what happens when educators adopt an anti-deficit (or, ultimately, strengths-based) framework. This requires researchers to see and navigate engagement with differences – both the stark differences that might exist between communities and the more subtle differences within communities.

Research with an Equity Lens

The first question for many people is what does “with an equity lens” mean? The answer is as simple and as complicated as the answer one gives a student who asks: “What does ‘limit quotient’ mean?” The response depends on the people asking and what kinds of answers they are ready to understand. Sometimes, students are ready to engage in a discovery activity with limits and quotients to build complex connections among ideas about which they already have substantial knowledge. Sometimes, students are ready for an epsilon-delta explanation as a clarifying response. Or, learners may need several smaller activities to scaffold to an informed exploration of the idea. Here, we assume the last, that scaffolding and smaller activities are in order. Thus, we offer a direct message to the reader: if you are ready for a complex examination of the ideas, this essay may seem incomplete because of what it does not tackle (e.g., critical theories). Nonetheless, there is something here for readers at all levels of expertise. The essay has basic information that can be used as a resource for exploration in a variety of settings, perhaps in a mathematics education graduate course, at a conference during a working group session, by a reading group, or independently for personal growth.

Given the nature and foci of research in post-secondary mathematics education to date, new ways of thinking and new ways of engaging with topics, participants, structures, mechanisms, and results of research are needed for work with an equity lens. Crucial to realizing the new view is to detect, discuss, and disrupt inequities within the research paradigm itself. Therefore, there are lessons to be learned from existing research on topics of societal injustice (e.g., regarding human constructs such as race, gender, ability) and how to notice, talk about, and respond to those. For many, such work will create discomfort.

How does one engage in conversations about research in mathematics education that may be challenging and uncomfortable? We suggest several options: mindful awareness of one's own views, building awareness and responsiveness to the in-the-moment experiences of colleagues during challenging conversations, and purposeful discussions of the expanding research base on equity and excellence in mathematics education in school and post-secondary settings.

Important in mindfulness is examining the perspectives each person brings to the work of research in mathematics education with an equity lens (Cai, Huang, & Robison 2019; Foote & Bartell 2011; Herbel-Eisenmann, Wagner, Johnson, Suh, & Figueras 2015). Each of the authors of this essay has taken a different route in coming to mathematics education as a professional focus. Our experiences are rich in dealing personally with institutional “-isms,” both academic and societal. Some details about these backgrounds appear at the end of the article.

Tools for Challenging Conversations

Breaking the silence around inequity calls for

- language that is useful for voicing ideas,
- communication structures that support starting and continuing conversation when the topics are risky (e.g., personally, professionally, socially, emotionally), and
- a means for maintaining awareness about conversational effort.

A *tool* is a device adapted to facilitate a specific kind of work. This section describes three conversational devices specific to the work of communicating about equity. The first tool is to distinguish between talking about a social structure and engaging in an “-ism.” The second tool is a set of agreements for challenging conversations. The third tool is for mindfulness in the midst of conversations.

Noticing the Difference Between -isms and -izations

Being mindful of one's own views includes how to notice and articulate situationally important difference and similarity. There is a distinction to be made between perpetuating an “ism” and dealing with the fact that it exists. For example, *racism* refers to the ways in which avoidable and unfair inequalities are perpetuated based on ethnic, cultural, religious, and other characteristics associated with the social concept of “race” at interpersonal, institutional, and societal levels (Berman & Paradies 2010). By comparison, *racialization* refers to the processes by which characteristics identified as “racial” become meaningful in different social situations (Delgado & Stefancic 2001; Walton, Priest, & Paradies 2013). The two are often conflated, resulting in the contention that any mention of race is racist. This conflation of terms can derive from a variety of views, from a belief in “color blindness” (Apfelbaum, Norton, & Sommers 2012), a drive to be “colormute” (in which race-talk is actively silenced or removed in social interactions or written documents; Pollock 2004) or in taking a stance that society is past race-

based discrimination and can be considered “raceless” (Ono 2010)¹. Racelessness and “colormute” approaches draw on “color blindness” but for different purposes. Paradoxically, to be “colormute” is to assert that racial differences exist in order to actively remove mention of them, while racelessness makes the unwarranted leap of assuming that race no longer matters to anyone (Kempf 2012).

Research has suggested that goals for equity, inclusion, and social justice are undermined when biases remain unexamined, implicit, or “unconscious” (Warikoo, Sinclair, Fei, Jacoby-Senghor 2016). Racialization, or genderization or other fill-in-the-blank-izations that use language to acknowledge inequities, can be a valuable support for making bias explicit (rather than implicit).

Discerning difference, recognizing patterns, and anchoring new knowledge in those already noted differences and patterns are at the core of all human cognition. In other words, examining and making sense with our experiences are the essentials that allow humans to think, know, and learn. This is true, also, for learning to communicate explicitly about bias and to challenge it. When effective, such explicit communication among researchers will generate discomfort, agitation, and conflict as knowledge grows. Persistence for growth requires courage.

Courageous Conversations

Over the past 15 years, Singleton and Linton’s (2006) courageous conversations framework has become a cornerstone in the professional development of teachers. This is evidenced in its centrality in defining and reporting, from inclusion in the *Oxford Research Encyclopedia of Education* (e.g., Beachum, 2020) to use in synthesizing reports of teacher experience (Mawhinney & Rinke, 2019). The framework is built on four agreements made by participants in a conversation before it starts. These agreements contradict some tightly held cultural norms related to race talk. To participate in a “courageous conversation” people agree to:

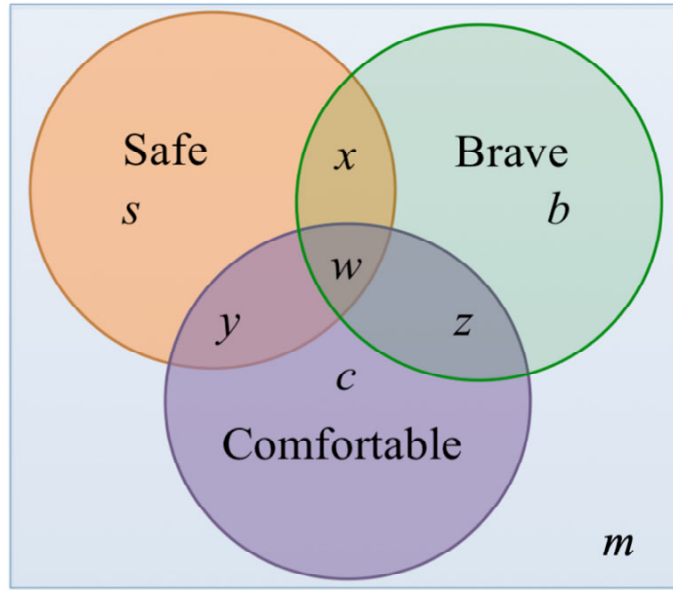
- stay engaged,
- expect to experience discomfort,
- speak their truth, and
- expect and accept a lack of closure.

Navigating the four agreements requires meta-awareness about oneself, others, and the flow of the conversation itself.

Feeling Safe, Comfortable, and/or Brave

A tool the authors have found helpful in building awareness and responsiveness to the in-the-moment experiences of ourselves and colleagues is the Venn diagram shown in Figure 1. The diagram can support self-aware communication about how people experience intellectual and professional risk. For example, a person may not feel safe having a conversation with (or about) people from other races, but can be brave and handle the discomfort in order to stay engaged in a conversation (region *b*). In what follows, after some definitions, are a few illustrations of experience in each of the regions in Figure 1 (*s*, *b*, *c*, *x*, *y z*, *w*, *m*). Note that the Venn diagram tool and its use reject the concept of “safe space” that has been in use for many years. The Venn diagram is built on the assumption that interactions or conversations that are “safe” for all participants are rare (if not impossible; Arao & Clemens 2013).

¹ Rather than discuss the political semantics of using the terms “color blindness” and “colormute,” we have left the original authors’ uses in quotes.



$U = \text{Personal experience of a conversation}$

Figure 1. Safe-Comfortable-Brave Venn diagram: a juxtaposition of three types of experience related to taking interactional risk.

Unlike the term equity, each of the words in the Venn diagram— safe, comfortable, brave—has a small set of well-established meanings in conversational English (see Table 1).

Table 1. Definitions

<i>Comfortable</i>	<i>Safe</i>	<i>Brave</i>
1. affording or enjoying contentment and security; routine	1. secure; free from risk of harm;	1. having or showing courage;
2. free from vexation, doubt, or stress	2. unlikely to produce controversy or contradiction;	2. mental or moral strength to venture, persevere; withstand danger, fear, or difficulty
	3. reliable	

For the purposes of this discussion, the Venn diagram is an *individual tool*. It is meant as a way for a person to reflect on (and perhaps articulate) the nature of individual experience in a particular moment. As noted, the diagram is not about shared physical or intellectual spaces: a whole conversation, a research paper, a research design will *not* be a member of one of the sets or in a region. In fact, in the course of a three-minute exchange during a research development meeting, one person could experience each of the seven regions in the diagram! We have used the diagram in a variety of settings, to point to (literally) as a discussion tool when having challenging conversations. To illustrate, two different perspectives on what the regions mean are offered. The first examines the meaning of the lettered regions using the analogy of walking a tightrope. The second gives a few extended examples in the context of being a researcher in post-secondary mathematics education.

Tightrope Examples

- An inexperienced tightrope walker practices by walking a chalk line on the ground; the walker feels safe, not particularly brave, but perhaps not comfortable in learning a new skill (region *s*).
- The novice walking a tightrope, strung 15 feet up in the air with a net below may identify the experience as still not comfortable but relatively safe and calling for being courageous (region *x*).
- The same novice, without a net, may no longer feel safe or comfortable and identify as only being brave (region *b*).
- An experienced tightrope walker with or without a net may feel brave, safe, and comfortable because of familiarity and routineness of the effort (region *w*).
- An experienced tightrope walker may be comfortable writing an instruction manual but feel a professional risk in making controversial training suggestions (region *c*).
- Though experienced, a tightrope walker crossing a rope in an unfamiliar, windy, site, may identify the risk (absence of safety) yet be comfortable with the challenge and call on bravery to begin the effort (region *z*).
- Working on a rope just a few feet above the ground, an experienced tightrope walker introducing a new training element (e.g., exchanging a 10-foot balance pole for a new 20-foot pole) might swiftly move from an experience that feels safe and comfortable but requires bravery (region *w*) to one where courage is not a major component (region *y*).
- A tightrope walker who has just fallen from a rope 30 feet above ground when there is no net below may not feel safe, brave, or comfortable (region *m*).

Researcher Example 1

Suppose I am a white research faculty member talking with two white graduate students who have been vocal in their deficit views of non-whites as learners. The topic is a new research project they are to work on and my goal is to guide them to readings about how to include attention to race and gender in their research in productive ways. This is familiar and routine advice on my part, so I feel comfortable in my role and what I am saying. I am not feeling the need to be brave (yet), because this is an initial conversation (region *y*) - continuing conversation after the students have done some reading probably will involve being brave. A little later, I realize the conversation is professionally risky for me when the students say that if I insist they do the readings, then they plan to complain to the chair about the assignment (region *z*). Unsure of my relationship with the chair, I suspect there is a professional risk. At this moment, I would point to region *c* to identify my experience (still comfortable in my role and what I am saying, but not safe and not brave).

Researcher Example 2

In a writing group about incorporating attention to equity into mathematics education research, I am asked by my colleagues to clarify my meaning in an off-hand use of the word “ally.” I struggle to define the term and realize I do not have a fixed meaning, but rather a nebulous idea of people and scenarios that is grounded in its use in the white, middle-class LGBTQ² community. As I verbalize my struggle to colleagues, I do not feel comfortable in what I am saying, but I feel my colleagues are allowing me the necessary space to explore. I would

² Lesbian, Gay, Bisexual, Transgender, Queer

initially point to region s to identify my experience. They, one-by-one, share their own experience with and perceptions of “allies.” I begin to understand how differently and emotionally-loaded “ally” can be perceived in different communities. One person reports the term as welcoming while acknowledging essential differences in experience. Another says that to be called an ally is to be assigned to a side in a dispute. A third person says the word is a fence that isolates. At this point, to proceed with verbalizing my thoughts involves being brave (though still safe because of the trust built within our writing community; region x).

Researcher Example 3

Suppose I am a light-skinned ethnic minority individual who looks, but does not identify, as white. I am used to struggling to be recognized for who I am both personally and professionally, and spend many conversations moving among brave regions (b , w , x , z). I speak to several colleagues about my plans to conduct research on advanced mathematical learning among students with Down syndrome. As a parent of a child with Down syndrome, I have read a lot of literature on how children with Down syndrome learn. Also, as the only researcher in our group who has a background in the topic and a mid-career academic, I am not likely to meet resistance. In preparation for this conversation, I may need to anticipate possible questions from my colleagues. I am safe and there is no need to be brave because I have not entered the conversation yet, but thinking about possible questions may cause discomfort (region y and then s). Entering the conversation, however, requires a certain amount of bravery. The conversation with my colleagues is safe: it does not produce risk to my career. I am confident in my knowledge of Down syndrome and mathematics education, as well as my ability to identify a viable research topic. However, the topic is highly personal and I am likely to encounter questions and misconceptions that may be stressful to hear. I feel safe and brave, but I am not comfortable (region x).

People will spend significant time in regions b , x , and w when enacting the four agreements for courageous conversations. In particular, keeping the Safe-Comfortable-Brave Venn diagram in mind during conversations about research designs can help identify whether designs promote equity and social justice. The Safe-Comfortable-Brave Venn diagram can also assist in noticing that a group’s interactions are limited, perhaps only involving activities that keep individual experiences firmly in safe and comfortable regions (and undermine progress towards equity-minded goals).

Moving from Personal Reflection to Professional Action

According to the TODOS-NCSM (2016) position paper, three conditions are necessary to establish socially just and equitable mathematical education for all learners:

- (1) **acknowledging** that an unjust social system exists,
- (2) **taking action** to eliminate inequities and establish effective policies, procedures, and practices that ensure just and equitable learning opportunities for all, and
- (3) **being accountable** so changes are made and sustained.

What would be different if decisions in a project you know about had included overt and repeated attention to the three tenets? How would acknowledging that the social system is unjust shape selection of sites? Participants? Topics? Interpretations of actions and words? How might a next research question be framed so the answer would be evidence to support action to eliminate an inequity? How do we do that? How might research design or analysis need to be

different if the results of the work were held accountable by research peers *and* judged in a court of stakeholder opinion that valued equity as much as excellence in mathematics education?

Short, possibly terrifying answers to these questions exist: observe the world; be purposeful in inviting people into your research who do not look like you or act like you or think like you. But the short answers are deceptive. Such calls for courageous action in the face of our own ignorance can feel motivating *and* can be recipes for disaster. Entering the uncomfortable, not necessarily safe intellectual space of research that pays attention to equity and social justice can be rewarding – but we must also stick it out even when it is a struggle.

Change is fostered by changing. It is as simple and as difficult as that. One does not gradually notice racism or sexism or deficitism or any other ism. It suddenly is there, noticed. It cannot be un-noticed or satisfactorily explained away.

Use the tool of the Safe-Comfortable-Brave Venn diagram for noticing your experiences when equity or inclusion or social injustice comes into consideration. Safety and comfort are not the same thing. Tease them apart, notice the difference. Read about and use the four agreements for courageous conversations, and when talking with others be specific, reflective, and patient. Share experience of the conversation (while it is happening) using the Venn diagram. You may be astonished at how different others' experiences are from your own during a short, equity-charged, exchange.

Conclusion

Much like society-at-large, what is valued and what is marginalized in research is the result of social forces (Aguirre et al. 2017). In her book *Raising White Kids: Bringing Up Children in a Racially Unjust America*, Jennifer Harvey (2017) remarked on majority culture norms that call for faculty and students to be “colorblind” and to avoid the uncomfortable conversations necessary for identifying and addressing inequity. However, those norms are not a justification for ignoring inequity as researchers. This is coupled with the reality that many who do research in post-secondary settings, including RUME, have had little experience working with, or for, equity and inclusion. Thus, research in undergraduate mathematics education is regularly implemented by people with sparse resources for noticing or talking about inequity. As a consequence, research involving marginalized groups often takes a deficit approach – populations are positioned on the other side of a gap or as struggling or underachieving (Adiredja & Zandieh 2017). Essential to Aguirre and colleagues' Political Act 1 is reframing to an anti-deficit perspective. As a result, researchers are faced with the challenge of seeing and engaging with differences as positive, as resources for new ways of seeing, doing, and being.

The reason to get on a particular professional roller coaster is for the thrill of the ride *and* because we feel safe enough, or pressured enough, to be brave enough to take the risk. The idea of an equity lens in research adds excitement to the roller coaster ride. The main emotional aspects may be trepidation along with meta-affect of hope, a hope based on a (perhaps hazy) vision of a socially just world. As we have reported elsewhere (Hauk, Toney, Judd, & Salguero 2017; Hauk & Toney 2016), the ideas and language of intercultural competence can help by providing resources for considering the affect and meta-affect. Though a detailed examination of how intercultural competence is developed is beyond the scope of this essay, central to such development is a shift from ethno-centric to ethno-relative interactions with the world. The shift is achieved through a cycle of mindful reflection, reference to an interculturally rich framework, and intentional action (see Extension 1, below, for a reading related to this topic).

This essay explored tools to increase researcher capacity for nuanced noticing of “isms” while tackling the truth of their existence. We did this through attention to *Political Act 1 - enhance mathematics education with an equity lens*. Thus, the essay and the post-reading extensions are an offer to the reader to engage in *Political Act 2 - acquire the knowledge necessary to do genuine equity work*. To attend to equity and social justice in and through research in post-secondary mathematics education means addressing our own needs (as humans who are researchers) for language, concepts, and awareness-building to support intentional decision-making. At the same time, there is the related, inevitable, struggle of engaging in challenging conversations. The post-reading questions are invitations to engage in *Political Act 3 - challenge the false dichotomy between mathematics and equity* (e.g., question 2) and *Political Act 4 - expand the view of what counts as “mathematics.”* (e.g., question 6).

We invite the reader to set goals, leverage resources, and reach beyond personal orientations for a new and inclusive RUME – one that dismantles inequity. To make progress, we must embrace the humanity and fallibility of ourselves and of those our research is meant to serve. The interaction between the authors and you, the reader, was an acknowledgment, an action, and an opening for accountability. Next steps include the RUME community engaging in cycles of offering and refining definitions of equity in/through research in post-secondary mathematics education.

Post-Reading Questions and Extensions

Find someone to talk with who agrees to Singleton and Linton’s (2006) four agreements for challenging conversations and discuss some/all of the post-reading questions. The set of questions asks you to do some *acknowledging*, *take some action* (e.g., step into being brave enough to read) and be *accountable* to yourself and a conversational partner. The extensions offer suggestions on additional activities that build on the conversations about the questions.

Question 1. How do the three conditions in the TODOS-NCSM position paper relate to your research practice? How do they relate to your professional role/status around equity and mathematics education as a researcher and, perhaps as a mentor of other researchers?

Question 2. Gutstein and colleagues (2005) remarked, “the main issue for us is how mathematics education research can contribute to understanding the causes and effects of inequity, as well as the strategies that effectively reduce undesirable inequities of experience and achievement in mathematics education” (p. 94). What is one thing you want to see change in your mathematics education research that would improve fairness in the way research is designed or conducted?

Question 3. Briefly describe one of the things you find challenging or uncomfortable about discussing equity, diversity, or inclusion as an aspect of research in post-secondary mathematics education. Is it possible for you to feel safe discussing that thing? Why or why not?

Question 4. Researchers often use the language of “participant” these days instead of “subject,” but in what ways are those people *participating* in the research? How do we get/be explicit about (re)humanizing research in post-secondary mathematics education?

Question 5. Is it possible to create/facilitate a conversation about research in mathematics teaching and learning in which people participate together in the same conversation but differ in the regions of the Safe-Comfortable-Brave Venn diagram from which that engagement is experienced? Why or why not?

Question 6. Read Adiredja and Zandieh (2017). Do you think the examples given in Adiredja and Zandieh could have been given by any female student? Any student (i.e., regardless of gender identity)? Why or why not?

Extension 1: Read the article, *Becoming interculturally competent* by Bennett (2004). How are your answers to any one (or more) of the above questions altered? Why?

Extension 2: Read the article by Aguirre and colleagues (2017). How are your answers to the above questions altered? Why?

Extension 3: Read the article by Andersson and le Roux (2017). How are your answers to the above questions altered? Why?

Extension 4: Read the excerpt from Singh (2020). How are your answers to the above questions altered? Why?

Extension 5: Commit to a weekly reflection. Plan to incorporate one of the three necessary conditions outlined in the TODOS-NCSM position paper into your daily decisions (acknowledgement, action, accountability). Reflect on the experience throughout your week. What was comfortable, safe, brave? Commit to one behavior change each week that will support you in fostering inclusion within your own work and life contexts. Consider one thing that you could do to make someone else feel welcomed, valued, and free to just be (in whatever brave, safe, or comfortable way they have).

Being Explicit About (Potential) Biases

Author Brown is a semi-retired Associate Professor of Mathematics Education. Her current research interests include social justice in mathematics education and the mathematical education of individuals with disabilities. Brown identifies as female, an individual with disabilities, and in-between cultures from a mixed ethnic background. She has experienced exclusion and privilege in multiple ways. Brown grew up in a family rich with teachers and educators, in a community where a national cultural minority formed the local majority. As a female student in the southern United States, Brown fought for advanced education in mathematics at the secondary level. A fight she ultimately lost. Now, as a mother of a child with disabilities and disabled herself, Brown continues to bump against the limits of majority culture preconceptions on a daily basis. She also is learning how her own use of language may limit the potential of others and how to live uncomfortably by challenging herself, her work, and the work of others. Her personal and professional experiences have brought her to the topics in this paper as she continues to learn how to use research to advocate for a worldview in which learners are allowed to show what they know and present their knowledge in unique and beautiful ways.

Author Hauk is an Associate Professor of Mathematics. Her background includes five years as a secondary school teacher of English and mathematics, a Ph.D. in mathematics, and a post-doctoral fellowship in mathematics education. Hauk's personal history is filled with stories of great sadness, joy, pain, and loneliness in relation to mathematics: from the first grade where punishment for talking too much in class was to be slapped and ordered to teach Ruben how to add, to failing high school geometry and subsequently completing a year of geometry in six weeks of self-study, to later being the only American female in a sea of largely male, mostly international students at the Ph.D. graduation ceremony. Hauk's years of dislike for the syntax and culture of mathematics is paired with an acknowledgement of an affinity with mathematics-avoiding and mathematics-indifferent undergraduate students. Dubbed "that pink girl" while growing up in neighborhoods of mostly brown families, Hauk's upbringing was steeped in racial

and ethnic diversity in low- to mid-socio-economic status communities. On the first day of third grade she became aware of the white privilege ceded to her and has noticed and challenged -isms (in herself and others) since the second day of third grade. This work is important to her because of the harm that self-ignorance and ignorance of others continues to do locally, nationally, and internationally. Hauk's research on relational and cross-cultural communication in the teaching and learning of mathematics shifts focus away from the individual cognitive psychology common in majority culture driven research in the U.S. Instead, it foregrounds relationships, particularly the role of cultural competence development, in teaching and learning.

Author Salguero is a Researcher at a not-for-profit educational agency. The agency offers professional development services for mathematics teachers and instructional leaders in primary, secondary, and post-secondary settings that is research-based and promotes responsive instructional practices. Salguero's work aids teachers to let go of deficit-thinking for themselves and their students as mathematical doers and build teacher agency and authority in mathematics in ways that positively impact student identity and agency around mathematics. She grew up in East Oakland, California and experienced many academic challenges from elementary grades through college years as a Latinx student. A seed planted by a third-grade teacher meant Salguero did not consider attending college until her junior year of high school. Nonetheless, she was a first generation Latinx college graduate. Salguero became interested in mathematics education while working with Upward Bound, an educational enrichment program in the United States for first-generation-college-bound students. The job meant creating opportunities for Oakland students to see college as part of their future, even when at times surviving the current day was a challenge due to their home environments. A former middle and high school mathematics teacher in urban areas of New York City and California, Salguero continues to defy stereotypes and the beliefs others project. She enjoys supporting people and asking questions to create self-awareness as well as to understand others' perspectives and opinions.

Author Toney is a Professor of Mathematics Education in a Department of Mathematics and Statistics. As a researcher, she is committed to the power of narrative reporting. Raised and enculturated in a primarily white, southern U.S., first-generation middle-class family with loosely-defined-but-rigidly-enforced class, race, and gender roles, Toney experienced early confusion navigating questions about group identity. This was due in part to having a mixed-race sibling in an environment where "black" and "white" – the only two groups that had names – did not mix. It was also due in part to Toney's development as a queer, not-quite-gender-conforming female in a family where dresses, make-up, and sewing were encouraged and pegged jeans, pocket knives, and dirty hands-on science experiments were "a phase." Toney was taught to bask in and feel entitled to the white privilege she was afforded at school where, in fourth grade, all the white kids and quiet black girls sat at the "good" table while all the black boys were relegated to the tables dubbed "so-so" and "yuck." Personal experiences such as these, combined with continued professional experiences raising questions about who has and who grants access to education, power, and privilege (and a natural inclination to question authority) brought Toney to the topics of this paper. As a result of this work, she has learned to embrace "uncomfortability" as a necessary component of growth and education and hopes it serves as a model for others in similar (or not-so-similar) positions of privilege.

Conflict of Interest Statement

On behalf of all authors, the corresponding author states that there is no conflict of interest.

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