Editorial

Too Little, Too Much, Just Right!—Articulating Shared Problems in the Practice of Mathematics Teacher Educators

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> **If I had an hour to solve a problem, I'd spend 55 minutes defining what the problem is and 5 minutes thinking about solutions.—Albert Einstein (Nowlan, 2017, p. 109)**

In this editorial, we focus on the unsuspecting challenge that many prospective authors encounter when writing manuscripts for this journal—that of clearly situating their manuscript as relevant and connected to a significant and compelling shared problem of the practice of mathematics teacher educators. In our previous editorial (Crespo & Bieda, 2017), we introduced a writing tool that organizes and makes visible all five review criteria for this journal into a writing template (reproduced here in Figure 1). This tool is meant to help prospective authors foreground the criteria as they conceive, outline, draft, review, edit, and revise their manuscripts. As prospective authors have begun to try this tool and share their outlined manuscripts with us, the challenge of articulating a shared problem of practice in *MTE* manuscripts has become more evident.

In the September 2016 editorial (Bieda, 2016), Bieda discussed the challenge of specifying what is meant by "practice," as this construct has multiple grain sizes and definitions (Lampert, 2010). For instance, there is the notion of a practice of mathematics teacher education as a specific activity, tool, or method that mathematics teacher educators (MTEs) use in their work as mathematics teacher educators, and there is also the notion of practice as a "complex form of socially established co-operative human activity" (MacIntyre & Dunn, 2002, p. 7) that is relational and with its own set of internally-developed criteria for excellence (Noddings, 2003). The *MTE* journal's aims are to co-construct our knowledge, as MTEs, to help us better engage in doing the work of mathematics teacher education. Although it may be tempting to organize the process of advancing our knowledge about the practice of mathematics teacher education by offering solutions, we can only engage in co-constructing the process when we are thoughtful and deliberate about defining our shared problem. Our goal in this editorial is to develop our understanding of the different ways that authors can, as the quote says above, "define the problem" that their manuscript seeks to inform.

What Does It Mean to Be a Shared Problem of Practice?

The articles published in *MTE* not only address problems of MTEs' practice—they are "shared" problems of practice. But shared between whom? The idea that these are shared problems of practice means that MTEs share a stake in finding solutions to the problems, not necessarily that the entailment of the problem is the same for all of those engaged in mathematics teacher education work. One exemplar would be the shared problem of practice related to developing teachers' mathematical knowledge for teaching (MKT). Both content course educators and methods course educators share a stake in finding solutions to better develop prospective teachers' MKT. For content course instructors, the entailment of the problem is the mathematical content understanding of the prospective teachers, whereas methods course instructors have a stake in the development of prospective teachers' MKT to support novice teachers in practices such as attending to and responding to student thinking. We can easily imagine an article in *MTE* discussing an innovation for supporting the development of prospective teachers' MKT for division of fractions that may have immediate implications for the work of content course instructors yet is also relevant for the preparation of novice teachers for methods courses.

Although the previous example was hypothetical, one of the feature articles in this issue, "Building Synergy: Cognitively Guided Instruction and Implementation of a Simulated edTPA Elementary Mathematics Task During an Undergraduate Methods Course" (Jacobs, Smith, Swars Auslander, Smith & Myers), nicely illustrates the kind of work that addresses "shared" problems of practice. Preparing undergraduates to become "well-started" novice teachers is a shared problem of practice among teacher educators who work in a variety of contexts (content courses, methods courses) but also those who stand to benefit from the work of these novice teachers (schools, parents, and children). Yet, increasingly teacher preparation programs face accountability for ensuring candidates are "well-started," particularly in the form of measures

Identify shared MTE problem	Situating problem in literature
What important problem or issue in the practice of mathematics teacher educators does the manuscript describe?	To which existing knowledge base in mathematics teacher education does the manuscript connect? In which theory and/or on which previously published articles is the manuscript grounded?
Description and argument for the innovation (solution/intervention/tool)	
What argument does the manuscript make for the innovation that addresses the identified problem? What details does the manuscript provide to allow for replication or modification of the innovation by subsequent authors?	
Details of the research on the innovation (solution/intervention/tool)	
What description of how the results of the innovation were studied and documented does the manuscript contain? What details does the manuscript provide to allow for verification of how the innovation was researched?	
Provide evidence for claims (and consider limitations)	
Beyond simply describing an innovation, what evidence does the manuscript provide of the effectiveness of the solution/intervention/tool? What warrants does the manuscript provide so that recommendations for policy and practice can be constructed or justified?	
New contribution to knowledge and practices of MTEs	
What specific new contribution to our knowledge does the manuscript make explicit? What discussion does the manuscript contain about how this study can inform or influence the shared problem of MTEs' practice?	

***Figure 1. MTE* writing template.**

such as edTPA. Jacobs and colleagues share their efforts to take up the challenge of these seemingly incongruent problems of practice—preparing "well-started" novices and ensuring candidates do well on the edTPA—by finding synergy within methods courses' curriculum to help teacher educators achieve goals for teacher preparation at multiple levels. Their article may have immediate, practical implications for other teacher educators working in elementary mathematics methods courses, but those in districts and schools, as well as administrators of teacher preparation programs, also have a stake in the knowledge the article provides.

What Makes This so Hard to Do Well?

As authors of manuscripts, we continually grapple with these issues ourselves. For example, as we were discussing these issues in our regular meetings within our editorial office and the *MTE* editorial board, each of us could tell a story that made this challenge salient for us. For example, one of us remembers feedback she received with a manuscript that eventually (and happily) made it to publication (see Crespo & Nicol, 2006) focused on exploring the curriculum potential of content and methods tasks she and her colleague had developed and used in their methods courses that were focused on division by zero. Reviewers and editors pressed for a better articulation and justification for how and why the manuscript had such a narrow curricular focus on division by zero. Although we discussed MKT as an exemplar context for shared problems of practice, it can be very difficult to provide a compelling rationale for attending to a particular aspect of an identified shared problem of practice when the work addresses such a widely known and contested problem of practice. Moreover, it is especially hard to clearly articulate the shared problem of practice when the work may be addressing multiple, significant problems of practice (e.g. developing teachers' MKT for teaching in bilingual settings). We have found, however, that the *MTE* writing template is helpful for authors as a framework to unpack the work of articulating a shared problem of practice in your *MTE* manuscript, and in such a way that is compelling and convincing to the reviewers and readers of this journal.

Revisiting the *MTE* Writing Template

The *MTE* writing template explicitly prompts authors to relate their work to a shared problem in the practice of mathematics teacher educators. The first and last prompts (see Figure 1) ask authors to do the following:

- Identify shared MTE problem (*What important problem or issue in the practice of mathematics teacher educators does the manuscript describe?*)
- New contribution to knowledge and practices of MTEs (*What specific new contribution to our knowledge does the manuscript make explicit? What discussion does the manuscript contain about how this study can inform or influence the shared problem of MTEs' practice?*)

Although these explicit prompts help authors envision the bookends to their *MTE* manuscript, it is important to note that each cell of the *MTE* writing template demands attention to the identified shared problem of practice. This is no accident; successful *MTE* manuscripts continually remind the reader of the identified shared problem of practice they are addressing with their study. But it is in the opening and the closing of an *MTE* article that the identified shared problem of practice is articulated and made explicit for the reader. This is reflected in the *MTE* writing template. The prompts provided within the template are meant to help authors articulate and discuss the shared problem of practice they have identified and see their study as contributing to the ongoing conversations in mathematics teacher education about that particular issue of practice. Let's look at how articles from this issue pay similar attention to articulating a shared problem of practice their work addresses, although the problems addressed are distinct and varied.

As mentioned before, Jacobs et al.'s (2017, this issue) article is focused on the interplay between preparing "well-started" novices and responding to teacher education accountability measures. Webel and Conner (2017, this issue) address the issue of supporting preservice teachers to reframe their question posing. Carlson, Heaton, and Williams (2017, this issue) explore professional development opportunities for mathematics instructional leaders. Amidon, Chazan, Grosser-Clarkson, and Fleming (2017, this issue) discuss how and why virtual field experiences can bridge the theory/practice disconnections in teacher preparation courses. In their commentary, Felton-Koestler and Koestler (2017, this issue) help us identify a seldom-named, shared problem of practice, that of considering the political aspects in the work of mathematics teacher educators. Now, we will zoom in on the first and second article to discuss ways in which a shared problem of practice may be identified—ways that lead reviewers to suggest that there is either too much or too little attention to identifying a shared problem of practice.

In "Using Simulated Teaching Experiences to Perturb Preservice Teachers' Mathematics Questioning Practices," Webel and Conner identify the challenge of helping

novices reframe and revise intuitive ideas about teaching mathematics. Specifically, they focused on supporting preservice teachers (PSTs) to pose better questions that respond to and extend student thinking. The authors documented their efforts to design approximations of practice to perturb PSTs' enactment and reflection on their questioning practices. The simulated scenarios in the Lesson*Sketch* platform contextualized classroom situations in which PSTs could experiment with posing different questions and then reflect on the outcome. The article sheds light on particular design features that support PSTs to reconsider and reflect on their questioning practices.

During the review process, reviewers recognized the shared problem of practice that this manuscript was addressing. The revisions that were recommended were minor and the manuscript moved smoothly through the review process to make it to publication. In the final stages of review, one crucial piece of feedback the editor (Crespo) for this manuscript gave to the authors focused on the issue of too little and too much that is alluded to in our title for this editorial. The specific request the editor made to the authors was to delete an entire section in their analysis, which had not been articulated initially as part of the shared problem of practice. Keeping this section would result in a mismatch between the articulated and the discussed problem of practice.

> **The big item I am suggesting is to delete the analysis you did on the interpretations of the students' thinking—although related, it is not clearly connected to your RQ and framing of the manuscript, which centrally focuses on questioning practices without lit review related to the practice of interpreting students' thinking. This would address the issue of length of the manuscript now and also keep the manuscript focused on your main argument about the design features of the simulated experience that supported and not PSTs' questioning practices.**

The second article in this issue had a similar, yet different, challenge than that of the first article to make a convincing and compelling claim to a shared problem of practice for mathematics teacher educators. The shared problem of practice that Carlson et al. address in "Translating Professional Development for Teachers into Professional Development for Instructional Leaders" (2017, this issue) centers around principals and mathematics coaches' need to simultaneously attend to student thinking and teachers' noticing. The authors state that professional development that focuses on students only "was inadequate in supporting the principals and coaches who needed to develop expertise in noticing that was specific to their work as instructional leaders" (p. 27). The authors describe a job-embedded professional development to help principals and coaches develop mathematics noticing skills. The article concludes with recommendations for initiatives that "aim to translate professional development for teachers into professional development for teacher leaders" (p. 36).

Like Webel and Conner, Carlson et al.'s manuscript reviewed well and was initially accepted with revisions. Yet, one of those revisions was homing in on the relevant contexts for the shared problem of practice. As one reviewer stated:

> **Also, the authors use educational stakeholders, then administrators, math coaches, and teachers and then shift to "school leadership," to school leaders, to instructional leaders. Are all of these groups the same or different? Which is the focus of this article?**

The work discussed in Carlson et al. is complex and ambitious, involving multiple stakeholders as well as pedagogical constructs (e.g. teacher noticing, design of professional development, teacher leadership). It is not easy to craft a manuscript that makes clear the shared problem of practice when the work is addressing so many interrelated issues. Should the work address the problem of strengthening teachers' abilities to notice? Or the problem of engaging all stakeholders in PD? Or the problem of designing PD to promote learning of teacher leaders? As you will read, the final, published version makes clear that the work is aimed to address the shared problem of practice in the last question. The revisions made by Carlson et al. helped to clarify the focus of the article as well as signpost the focus throughout to remind us, the readers, of the shared problem of practice the article addresses.

More Strategies and Resources

In *They Say, I Say: The Moves That Matter in Academic Writing*, Graff and Birkenstein (2010) discuss the writing process as that of entering and relating to ongoing conversations. In fact, this very editorial is a response to an issue we, the editors of this journal, have been experiencing and that is well documented in the research literature about academic writing. We are also positioning this editorial as being in conversation with past editorials we have written (the ongoing goal of demystifying the writing for publication process) and with literature about academic writing that informs our work as editors. More specifically related to the writing challenge of identifying a shared problem of practice, Graff and Birkenstein (2010) introduce two distinct yet interrelated questions about

research: "So what?" and "Who cares?" Together these questions ask why, and to whom, an argument matters and, for our *MTE* audience, that argument connects to a shared problem of MTEs practice. This shared problem of practice goes beyond identifying a gap in existing literature and connects to one or more conversations within the *MTE* literature about MTEs' practices. Explicitly speaking to the shared problem of practice in the literature moves beyond any assumed common understanding and strengthens the warrant that the research is addressing any problem at all. This move is more than rhetorical, however, as it sustains the dialogue of research that serves to refine MTEs' practice.

Explicitly articulating a shared problem of practice speaks directly to the so what and who cares questions raised of scholarly work. In this issue, the invited article, "Meet Me in Azul's Room," Amidon and colleagues (2017, this issue) set up a response to the "So what?" and "Who cares?" in the first sentence—"University-based professional education is often conceptualized as struggling with dichotomies between theory and practice" (p. 52). Anyone and everyone associated with "university-based professional education" is implicated and can relate to the struggles to bridge the theories that are studied in teacher preparation courses with past and present teaching practices. These authors have positioned their article as relevant to the enduring challenge of connecting educational theories and practices in teacher preparation programs. After discussing the ways in which the typical course-related field experiences come up short (e.g,, student interview), they offer an alternative. They describe and analyze a virtual field experience and how it has helped the teacher educator who designed it bridge some of the discussed theory-practice divides he has long experienced in his mathematics methods courses and that are widely described in the research literature.

Another useful approach *MTE* authors can use to address the "So what?" and "Who cares?" is to establish a link between the innovation they describe to the newly published AMTE (2017) *Standards for Preparing Teachers of Mathematics* (**https://amte.net/mtp/ebook**). This connection not only legitimizes the shared problem of practice as connected with the AMTE organization's standards, it also indicates to readers that their innovation is aligned with the field's shared commitments and vision to improving the preparation of teacher candidates. In their invited commentary, "Should Mathematics Teacher Education be Politically Neutral?" Felton-Koestler and Koestler (2017, this issue) also position their article as relevant to and in alignment with the newly published AMTE Standards. Specifically, the article frames ways in which MTEs can think about the political implications of their work, addressing the call in the new AMTE Standards that mathematics teacher education address issues of equity within teacher preparation coursework focused on preparing to teach mathematics, not only in general "foundations" courses required for certification. To help MTEs address this call, they invite the reader to consider:

Do we continue to allow teachers to accept the status quo or do we prepare teachers to challenge and disrupt—

- traditional, teacher-centered pedagogies?
- sorting students based on perceived "ability"?
- deficit perspectives about students' and their families and communities?
- limited and stereotypical representations of doers of mathematics?
- the positioning of mathematics as neutral and disconnected from social injustices?

We were particularly interested in this commentary not only because it makes explicit a sometimes hidden and seldom-discussed problem of shared practice among those who engage in teacher education, but also because the authors share their own experiences and expertise in addressing these equity issues in mathematics teacher education within content, methods, and in-service PD settings to help us, as a field, address the ambitions of the new AMTE Standards.

In addition to recommending "So What? Who Cares?" (Graff & Birkenstein, 2010, p. 92–101), as well as the entirety of *They Say, I Say*, the supplementary blog *They Say, I Blog* (**theysayiblog.com**) may be a helpful resource to some readers. In particular, the entry on Chelsea Johnson's experience answering "Who cares?'" about her research on black women's natural hair (**http://www.theysayiblog.com/.services/blog/6a00d83534ac5b69e20120a9220d38970b/search?filter.q=chelsea+johnson,01/26/2017**) offers practical advice for answering the "So what?" and "Who cares?" of our own research.

To close, we share here some advice we have at one point or another received from our mentors and/or find ourselves giving to our doctoral students and sometimes to prospective authors for this journal. One of the strategies we have found in our own practice as authors and as mentors of doctoral and early career faculty is to create an IGNITE presentation for their paper or manuscript—think of a lightning fast TED Talk (see **http://scottberkun.com/2009/how-to-give-a-great-ignite-talk/**)—with only 20 slides and the speaker has to convey her argument in 5 minutes. This has become a popular presentation art form that is helping academics convey in clear and accessible ways the "So what?" and "Who cares?" of their

research. We have found that for some writers, this strategy has helped them to more clearly articulate and communicate their personal and professional stake in solving a shared problem of practice in a way that is compelling and accessible to others outside of their field.

A smaller scale, low-tech alternative might be to ponder, Who may be citing my work? Why would they cite my work? What would the citation be and/or what point would they be supporting as a result of citing my work? These kinds of questions can help take you, as an author, away from the typical stance of reporting on what has been done in your research and practice and bring you to what it is that someone is to learn from your research and practice ("So what?"). Imagining that future citation not only helps authors to articulate the "take-away," as well as what stakeholders might learn about your answers to some significant problem, but it also forces authors to do so concisely. After the manuscript has been drafted, the responses to these kinds of questions can be used to guide a critical formative assessment of the manuscript—has the manuscript consistently addressed a shared problem of practice in a focused way?

We look forward to continuing the conversation about the writing and reviewing process. We will be specially interested in discussing more strategies for identifying and articulating a shared problem in the practice of mathematics teacher educators at our next *MTE* journal sessions at the AMTE and the NCTM conferences in the Spring 2018.

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