## *Research Commentary*

# From Dissertation to Publication in *JRME*

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In this Research Commentary, 3 *JRME* authors describe the process of publishing their research in *JRME*. All 3 authors published parts of their dissertation in *JRME* and are sharing their stories to help (new) researchers in mathematics education better understand the process and to offer (experienced) researchers in mathematics education a tool that can be used to mentor their less experienced colleagues and students. The authors address preparing, conceptualizing, and writing a manuscript as well as responding to reviewers.

*Key words*: College/university; Qualitative methods; Research issues; Writing/ communication

### GENESIS OF THIS RESEARCH COMMENTARY

Almost a decade ago, Lester and Lambdin (2003) described the evolution of mathematics education as a *professional research community*, one that had a clear identity of its own. In doing so, they argued that "a mark of a profession is that it provides systematic mentoring to novices to ensure that these new members will be well prepared to contribute to the activities of the community" (p. 1663). Lester and Lambdin emphasized the nature of a professional community; we also think it is helpful to consider some important activities in which communities engage when apprenticing newcomers. In particular, communities tell stories to help pass along information and lessons they have learned. Lester and Lambdin described a research apprenticeship experience as part of graduate studies, which typically includes involvement in all aspects of the research process under the guidance of more experienced researchers. In this report, we share lessons we have learned from publishing

our dissertation research in *JRME*. We do this to provide a commentary on the practice of publishing part of one's dissertation, so it can be used as a resource to mentor newcomers.

Why is it important to share our stories? First, although books exist that can help newcomers learn to write for academic audiences (e.g., Graff, Birkenstein, & Durst, 2011; Weston, 1992; Williams, 1990), it is compelling to hear someone's personal story from within the community. Second, we believe that this kind of story is important within the context of mathematics education because, unlike other academic fields such as English, mathematics education doctoral students may be less likely to enter their doctoral programs with substantial writing experience. Finally, as we have entered academia, we are now in the position to mentor others to write. We also find it challenging, because writing for academic journals is unlike most typical course-based writing assignments. For example, writing papers for classes or writing a dissertation is different from writing an article for publication, because the former are often geared toward demonstrating one's capability to, among others, (a) conduct research, (b) thoroughly review appropriate literature (for instance, dissertations often include extensive literature reviews), and (c) analyze data. Writing for *JRME* requires additional skills, which we describe subsequently. Being published in *JRME* is not trivial; the acceptance rate for *JRME* in 2009 was 6.8% (NCTM, 2011).

The genesis of this commentary resulted from our being invited to speak at the NCTM Research Presession because we each published parts of our dissertation in *JRME* (Ellis, 2007; Herbel-Eisenmann, 2007; Thanheiser, 2009). Here we share the process that we went through: (a) to prepare to write, (b) to put words to pages, (c) to submit (and let go!), and (d) to respond to reviewers. Although we each took a different path to producing our manuscripts, we mostly speak in a collective voice to describe, more generally, the processes that worked for us. When we provide longer examples that were specific to one of us, we list the author and indent the text to distinguish the processes that just one of us used.

## PREPARING TO WRITE

In preparing to write for a journal, it was helpful to (a) familiarize ourselves with the journal by reading and reviewing for it, (b) define the focal ideas for the manuscript itself, and (c) think about how to communicate our ideas. We discuss each of these in the sections that follow.

### Reading and Reviewing for the Target Journal

Once we each successfully finished our studies (or dissertations), we asked ourselves, Where should I publish my research? To help us decide what types of research were appropriate for a particular journal, we familiarized ourselves with that journal by reading a wide variety of articles that it published. We found this process helped us to clarify (a) the kind of work being done in the field, (b) the findings being reported in the journal, and (c) the rhetorical devices that were used within and across sections of articles, which helped us get a better sense of the genre of that journal.

Reviewing for a journal offered an additional perspective because it allowed us to see research reports in their early forms, rather than only the final published form. In contrast to the way that reading the finished proof in a textbook does not provide insights into the messiness involved in the proving process, we found that exposure to earlier versions of articles helped us see how people's thinking and writing evolves, as well as recognize important elements of manuscripts and gain insights into the nature of the review process.

### Defining the Focus (Before the Writing Begins)

Before beginning the writing process, we found it critical to understand clearly some of the important ideas in the broader body of mathematics education research and then to decide which of our ideas we wanted to publish in which journal. Being familiar with *JRME* helped us decide which ideas we wanted to highlight for the *JRME* audience. One way to become clear about a specific, article-sized focus is to discuss one's ideas with other people in the field, including mentors; other researchers who have worked in the focus area; and researchers with different fields of expertise.

*Herbel-Eisenmann*: I remember going to one of my first PME-NA conferences shortly after I finished writing my dissertation and meeting Janine Remillard and Gwen Lloyd. We ended up working together in the Curriculum Working Group, and I was able to talk extensively with them about my dissertation work. It was through these conversations that I was able to clarify my ideas and get feedback on ways to frame the article. I decided to focus my first dissertation-related article on the findings from the analysis of the written curriculum materials that were being used in the two classrooms I studied.

Although Herbel-Eisenmann's discussions began in fairly informal and serendipitous ways, decisions about focusing an article can also be made more formally with an advisor. Ellis, for example, had a focused conversation with her dissertation advisor about her results. Together they brainstormed ideas about which journals to target for each set of results, which allowed her to then map out a plan and a timeline for publication as she began her career. In addition to talking with her advisor and other researchers, Thanheiser found it helpful to solicit feedback on her ideas at conference presentations and use that information to prepare her manuscript.

### Communicating Our Ideas

One of the main points to consider when preparing to write is who the audience will be. We have found it helpful to consider the audience as readers who are experts in mathematics education, but who may not be experts in our particular (sub)fields of research. Given this point, we try to provide necessary background information and give sufficient detail so that readers will understand the context of the work.

## THE WRITING PROCESS

### Decisions About What to Put in Each Section

There are multiple approaches to writing a research article. In writing this report,

we recognize that we have taken two different approaches to writing our three articles, which were all empirical investigations. One approach relies on first writing the results section in conjunction with the methods section and then using that information to shape the other sections. The other approach relies on creating a detailed outline of each section, which allows for an overall view of the logic of the article as a coherent whole. The commonality of both approaches is that they allow the results section to drive the other sections. Although there are different ways to organize one's writing process, our description is specific to these two approaches, as they reflect our own experiences in crafting our articles.

## Results Drive the Other Sections

The heart and soul of an article lies in its results section (see Figure 1). All other sections of the article need to be written to support the results section. No matter which organizing structure one uses, the main points of the results should always be clear and prominent throughout the writing process. These main points dictate what needs to go into the other sections. Thus, we have found that it makes sense to focus our attention on the results section at the outset of the writing.

## The Results Section

When deciding what goes into the results section, we have found it helpful to pick a limited number of results to present, based on the findings that are most informative to the related work. Doing so can keep the manuscript focused, as well as allow the findings to be treated with depth rather than breadth. This decision raises the question of how to pick those results, which can be a particular challenge when attempting to distill a lengthy dissertation into a 40-page article. Comparing notes, we found the following processes useful: (a) talking with other people (within one's specialization and outside one's specialization) to help make a decision, and (b) connecting to
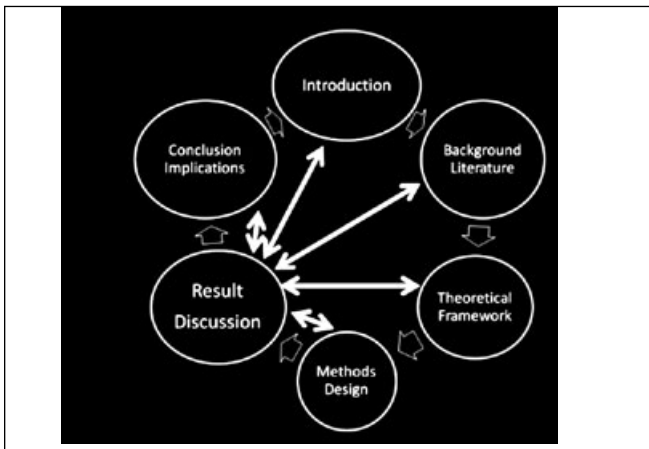


*Figure 1*. Relationship of results section to other sections in the manuscript.

previous research (being careful to specifically connect to previous articles published in *JRME*). The two major questions to keep in mind when choosing topics for the results are "So what?" and "Who cares?"

*Herbel-Eisenmann*: As I shaped my written curriculum analysis, I talked frequently to David Pimm, my advisor, and searched linguistics and discourse analysis literature that might help me ground the findings in concepts that helped to explain their significance to the mathematics education community. In particular, David suggested reading information that distinguished between analyzing text as "objective structure" and as "subjective scheme" (Otte, 1983) because most previously reported work focused on the latter, whereas I was contributing to the former kind of work. By connecting to analyses of textbooks as objective structure, I was able to argue that textbook authors can only write to an imagined "model reader" (Love & Pimm, 1996) and not to specific students who would be using their textbooks. Thus, it would be important to understand the relationships and roles that were constructed for the model reader of the text. Additionally, my search for linguistics articles helped me to identify various uses of the concept *voice*, which linked to the construction of roles and relationships between written text and a reader.

After choosing what goes into the results, we try to write the report in a way that allows the readers to draw their own conclusions from the data and to follow the data analysis. If the writing is lucid and thorough, readers should be able to make their own sense of the data and conclusions, allowing them to agree or disagree with the author. Alternate interpretations of the results should be anticipated and addressed in the discussion section of the manuscript. Once we are clear about the themes for the results section and how that section is to be organized, we have found it easier to determine how the other sections will lead up to or build on the results section. We discuss these various sections subsequently.

*Introduction*

The introduction sets the stage for the article and tries to pique the reader's interest while succinctly communicating the intent of the article. We have found a number of rhetorical devices to be effective, including interesting quotations, a compelling example or hypothetical situation, or an explanation of the genesis of the study. We focus on communicating what caught our attention and interest in conducting the research we reported.

*Thanheiser*: I was motivated to examine preservice elementary teachers' [PSTs'] concepts of multidigit whole numbers after experiencing the struggles PSTs faced when asked to explain why the algorithms for addition and subtraction work. In my introduction, I illustrated this struggle with a hypothetical situation and highlighted problems associated with this struggle, particularly if we want teachers to teach for conceptual understanding:

Imagine a child learning the multidigit addition algorithm used in the United States asking the teacher to explain the regrouping in 389 + 475 (see Figure 2). Consider one preservice teacher's (PST's) response to this hypothetical situation: "So if the 4 [9 + 5 = 14 in the units column] is down there, you would kind of

think that the [regrouped] 1 would be like a 10. But it only counts as 1. . . . I don't know why—because that's what I've always done."

The comment by the PST reflects a level of understanding that would be insufficient to support a child in developing a deep conceptual understanding of regrouping. (Thanheiser, 2009, pp. 251–252)



*Figure 2*. Standard addition algorithm for 389 + 475.

After setting the stage, we explicitly state what the article will do (a common rhetorical device used in academic papers but less common in other kinds of writing), as well as provide a rationale for the study. We have found it helpful to think about the following two questions: Why is this research important? and Why should anybody care about its results? Once we set the stage with the introduction and provide a rationale, the next sections typically focus on synthesizing previously established research results and introducing the relevant theoretical framework(s).

*Background Literature*

The goal of the Background Literature section is to provide the reader with enough information to situate the study in the field and to illustrate how the study extends the field. There are various ways to "extend the field." One way is to produce new knowledge and to link that knowledge to previous findings. Another way is to present data that support previous results. A third way is to make an argument that causes readers to think differently about the question or phenomenon under study.

The guiding question for inclusion of material in the Background Literature section is this: What does the reader need to know about the existing literature to understand one's research results and understand how they contribute to the field? Key terms and ideas from the results section can help one make decisions about what to include in the Background Literature section. The goal is to provide enough background information for the reader to know the current state of the field in relation to the current study. In this section, we also strive to craft a logical argument, culminating in the need for the study presented in the article. One way to accomplish this can be to present a problem of interest, include research responses to the problem, and then identify how the study to be presented augments existing work.

*Ellis*: My results elaborated a set of connections between generalizing and justifying in an algebra classroom. To set up the study, my Background Literature section had to accomplish a number of goals. First, the section had to establish why the reader should care about generalizing and justifying—it had to answer the "So what?" question. Therefore,

> I began the literature review by discussing why generalizing and justifying are critically important for algebraic reasoning. Second, it had to briefly familiarize the reader with the major results on students' generalization and justification in algebra. This review emphasized the many difficulties students face in trying to engage in successful and productive generalization and proving. Third, it needed to show that little research had been devoted to the interplay between generalizing and justifying. By explaining the importance of both activities, the current difficulties students face in engaging in them, and the critical need to more seriously examine the interplay between them, I was able to set up a rationale for the study.

Converting a lengthy Background Literature section of a dissertation into a more concise format for a journal article can be challenging. One way to accomplish this is to emphasize only the research that pertains to the more narrow set of results to be presented in the article. In doing so, one can also provide a rationale for the inclusion or exclusion of relevant research. Once the background literature is established, many authors follow with a section dedicated to the study's theoretical framework.

## *Theoretical Framework*

The results section also determines the content of the Theoretical Framework section. Silver and Herbst (2007) state that "mathematics education scholarship has become increasingly attentive to theory in recent years" (p. 40). Heid and Blume (2011) characterize a theoretical framework as "more than a diagram of boxes connected by arrows. Successful submissions [to *JRME*] offer frameworks that are explanatory and potentially predictive. They account for key constructs and situate those constructs in the context of related constructs" (p. 108). A theoretical framework is a conceptual model of how one theorizes relationships among several factors that have been identified as important to the research question(s) (Sekaran, 2000). A central goal for the Theoretical Framework section is to clarify the shared language and shared assumptions that guided the development of the study and to provide a lens for interpreting the study's data and results. In addition, a theoretical framework can serve to (a) provide a structure to conceptualize the study, (b) make sense of a set of data, (c) transcend common sense to promote theory building, or (d) help develop deep understanding that goes beyond solutions to immediate problems (Lester, 2005).

*Ellis*: Given the nature of the results I drafted, it was important to include a theoretical framework that defined what I meant by generalization and justification. These are terms that various researchers use in a number of different ways, so I needed to situate my work within a specific theoretical orientation. I described the actor-oriented framework on transfer [Lobato, 2003] as my stance on generalizing and contrast it with more traditional views of generalization and transfer. Similarly, I defined the terms "justification" and "proof" and familiarized the reader with Harel and Sowder's [1998] proof schemes framework, which informed the nature of my results. Finally, because my results also drew on a generalization taxonomy I previously developed, I used the Theoretical Framework section to introduce the reader to the taxonomy.

## *Method*

There are many different traditions of research and methodologies on which one can draw to do mathematics education research. Because our publications were all

empirical studies, we focus primarily on this particular kind of work rather than theoretical articles, reviews of the literature, or methodological articles. In our Method sections, we described the data we collected and how we analyzed those data. In some cases, data collection may be completed before data analysis begins (e.g., large-scale survey, achievement test research); in other cases, the data collection and data analysis may be intertwined (e.g., studies that use a grounded theory methodology). To help the reader understand the context of the work and how we collected and analyzed the data, we describe on who and on what we focused (e.g., background information on the participants or texts), what we did to collect and analyze our data, and how we connected our data analyses to relevant methodological articles (e.g., methods of discourse analysis, other types of analyses).
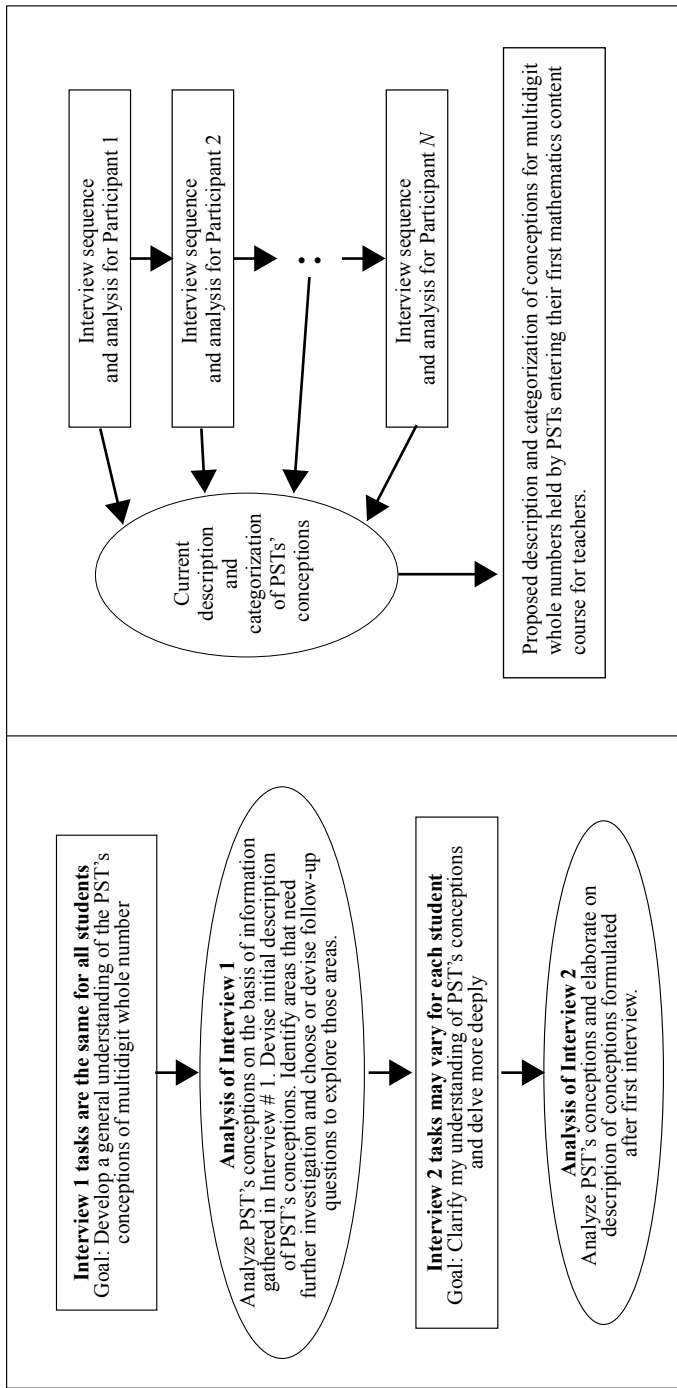
*Thanheiser*: In my study, data collection and data analysis were intertwined. To describe the PSTs' conceptions of multidigit whole numbers, I conducted a sequence of two interviews with each of 15 PSTs. The first interview in each sequence focused on gaining a broad understanding of the PSTs' conceptions and was the same for all participants. This interview was analyzed immediately after it was conducted, which allowed me to write an initial description of the PSTs' conceptions and select questions for the second interview. The second interview in each of the interview sequences followed up on the first interview and provided more specific information about the PSTs' conceptions. This interview had a more open structure so I could follow up on the PSTs' conceptions to understand them more in depth. To help the reader understand the interview sequence, I described the process and added a figure [see Figure 3a] to illustrate the individual interview sequence (data collection and analysis) for each PST. I emphasized the difference between data collection and data analysis by using different shapes in the figure (boxes for data collection and ovals for data analysis).

Collecting and analyzing my data this way allowed me to (a) compare the PSTs' responses across PSTs (because they all answered the same questions) and (b) understand each PST's conceptions in depth because I could probe their understanding individually.

Typically, I finished an interview sequence with one PST before starting another interview sequence. Beginning with the first PST's interview sequence, I described the conceptions PSTs seemed to hold about number. Beginning with the second PST's interview sequence, I compared and contrasted PSTs' conceptions and established a current description and categorization of PSTs' conceptions. To help the reader understand the overall data analysis, I added another figure [(see Figure 3b]) to illustrate this process. As new conceptions emerged through the constant comparison of conceptions, I refined the current description of PSTs' conceptions. In my original submission of my *JRME* article I did not include the figures. One reviewer asked for the illustrative figures, so I added them. I found that the manuscript became more readable with the figures included.

Converting the detailed Method section of a dissertation into a concise Method section for a journal article can be guided by the Results section in a manner similar to what we discussed for the Background Literature section. Although the dissertation Method section describes all the data collected and analyzed, the focus of a journal

**Interview 1 tasks are the same for all students**
Goal: Develop a general understanding of the PST's conceptions of multidigit whole number

**Analysis of Interview 1**
Analyze PST's conceptions on the basis of information gathered in Interview # 1. Devise initial description of PST's conceptions. Identify areas that need further investigation and choose or devise follow-up questions to explore those areas.

**Interview 2 tasks may vary for each student**
Goal: Clarify my understanding of PST's conceptions and delve more deeply

**Analysis of Interview 2**
Analyze PST's conceptions and elaborate on description of conceptions formulated after first interview.

(a) Interview sequence per PST
(Thanheiser, 2009, p. 259).

Interview sequence and analysis for Participant 1

Interview sequence and analysis for Participant 2

Interview sequence and analysis for Participant $N$

Current description and categorization of PSTs' conceptions

Proposed description and categorization of conceptions for multidigit whole numbers held by PSTs entering their first mathematics content course for teachers.

(b) Interview sequence across PSTs
(Thanheiser, 2009, p. 259).

*Figure 3.* Various interview sequences.

Method section can be limited to the data drawn on for the particular article. The level of detail required for a dissertation is not necessary for a journal article; one instead focuses the Method section more succinctly on the specific participants, instruments, data sources, and analytic methods relevant to the focus of the article.

In describing our data analysis methods, we focus on providing sufficient detail to allow the reader to follow our analysis process. In some cases, it may be helpful to provide a data excerpt and sample codes of the data along with an explanation of why the data were coded the way they were. We have found that providing specific examples can be an effective way of clarifying the ways in which we analyzed our data. In the Data Analysis section, we focus on laying out a convincing argument to the reader that our analysis techniques are appropriate to our research questions and well connected to the research results we will present later in the Research Commentary.

*Ellis*: My data analysis followed the interpretive technique, in which categories presented in the results were induced from the data [Strauss & Corbin, 1990]. Because I did not approach the data with an a priori coding scheme drawn from the literature, it was important to describe how I developed my categories in sufficient detail that the reader could follow the logic of the emergent coding scheme.

In the results, I presented four mechanisms for change, which were a way to describe how generalizing and justifying mutually influenced one another in order to support the development of more sophisticated reasoning. The analysis section had to justify how I came up with these mechanisms for change. The mechanisms developed through an examination of the times when students' generalizations and justifications demonstrated a "shift in reasoning." So, I had to operationalize what counted as a "shift" for the reader. Because the criteria for shifts were emergent, it was important for the analysis section to discuss thoroughly each criterion so that the reader could identify when it would apply to student data.

## Conclusions and Discussion Section

Because dissemination provides an opportunity to be part of the broader mathematics education community, the discussion section provides a space to connect the results to the Background Literature and the Theoretical Framework sections and to explicate how the study moved the field forward and added to the existing literature. It is also a place to select a few main points for the reader to take away from the study. It is common to conclude this section with a discussion of the theoretical, practical, and/or pedagogical implications of the study.

*Herbel-Eisenmann:* I typically try to discern three main points that I would like the readers to take away. A common beginning point I use, which was suggested by Thomas Cooney, is to "talk back" to the literature: What did you find in your study that supports previous work reported in the literature review? What was found that contradicts or calls into question previous findings? What was found that has not previously been found? Revisiting the literature in this way has helped me to develop cohesion between my opening sections and closing sections. Another typical

aspect I try to consider is a range of alternative interpretations of the findings. For instance, in my article, I considered the limitations of curriculum materials for achieving the intended goals of NCTM related to authority and then proposed that another possibility would be that textbooks would have to become something different from what they currently are in order to take into account the authority issues raised by the findings. By considering both of these alternative points, I used my discussion to raise these tensions as questions curriculum developers and mathematics education, more broadly, might need to consider, if we hope to work toward more equitable mathematics education for every student.

## *Cohesion*

A difficult but important part to consider is how the different parts fit together and flow. Although we have tried to illustrate some of the ways that we do this in the stories we have shared thus far, we reiterate a few key points. We previously mentioned how we try to build in cohesion conceptually and methodologically, as each part of the research process illustrates how it relates to the other. For instance, two of the examples that Ellis gave showed how the description of her conceptual work informed her analytic methods. But cohesion can also be achieved rhetorically by explicitly telling the reader what one is doing, how one will do it, and why. These rationales and road maps help the reader see the flow and make the argument transparent. Once we have a draft of an article, we go back to read it with cohesion in mind.

## LETTING GO

Letting go of a manuscript can easily be one of the most difficult things to do. Sometimes this difficulty has to do with writing a succinct argument. One source that Herbel-Eisenmann has found helpful for winnowing text is *A Rulebook for Arguments* (Weston, 1992). Having worked on a manuscript for a long time, we have found that there is always room for improvement. The goal, however, is to make the manuscript as good as possible without repeatedly re-revising sections. It might be helpful to remember that articles will never be perfect and that the feedback received from several experts in the field will help with revising the manuscript after the first round of review. Submitting the manuscript, although at some level represents a closure to the initial writing process, should be seen as a first step—but not the last—in the publishing process.

Revising, based on reviewers' comments, is an integral part of the process of creating a good article. It is, however, a good idea to go through at least one internal-review cycle with friends and colleagues and to integrate that feedback before submitting your manuscript to the journal. We have found it helpful to ask two reviewers to assist—one colleague who is close to the work and one colleague whose area is somewhat different from one's own—because each can help with different, but important, aspects of the manuscript.

RESPONDING TO REVIEWERS

After the manuscript has been reviewed, three recommendations are possible: (a) Accept, (b) Revise and Resubmit, or (c) Reject. We discuss all three in this section beginning with Accept and Reject and then focusing on Revise and Resubmit.

*Accept*

The most important thing to remember is that an accept outcome is rare in *JRME*. Accepts can range from Accept as Is to Accept With Revisions. This response indicates that the manuscript is a good fit for the journal and that the editor believes that all changes are possible without another round of review.

*Reject*

An article can be rejected for various reasons. In many cases, an article may be rejected because the reviewers or editor identified one or more flaws that would require changes so substantial that they would necessitate redoing the study, reanalyzing the data, or implementing other changes that would fundamentally turn the article into a new piece of work. In other cases, the manuscript may be well written but *JRME* may not be the right outlet for it, or it may be that there was not enough transparency about the research methods or not enough evidence for the reviewers or editor to believe that the reported findings were plausible. In the case of a reject, the author needs to assess the reasons. It is advisable to read the editor's letter and the reviewer comments and give them serious consideration, which can help with redoing the study, reanalyzing the data, and/or revising the manuscript for a different journal.

*Revise and Resubmit*

A decision of Revise and Resubmit may be cause for celebration or reason for disappointment, depending on what the editor requests and whether the revisions are manageable. When the editor has requested revisions that are feasible, the manuscript has a chance at acceptance after its resubmission. However, if the changes required are beyond the scope of one's abilities (e.g., asking for an analysis of data that one did not collect), then one may need to find a different outlet for the manuscript. Two lessons we have learned are to take all reviews seriously and that persistence pays off.

Reviewers send a list of suggestions and questions to the editor. The editor then writes a letter to the author, identifying major and minor issues that need to be addressed in the revisions. The revision should respond directly to the editor's and to the reviewers' comments, suggestions, and questions.

As authors, we first decide whether we can respond to the editor's and/or reviewers' requests. In this section, we will discuss how we have responded to reviewer comments. We have found that if a reviewer did not understand a point we made, we are responsible for making the point more clearly and explicitly. We have taken various approaches to responding to editors and reviewers, including (a) following the manuscript line by line and addressing each comment, and (b) focusing responses

to address the major and minor issues addressed by the editor and possibly some editor or reviewer comments as well. No matter which format we have used, we have found it important to respond to both the editor and the reviewers and to address all the major and minor concerns.

*Ellis*: When I respond to reviewers' concerns, I create a "response to reviewers" letter, in which I compile every question, concern, critique, or suggestion that the reviewers made and organize them according to each of the major sections of the paper. This letter provides a helpful way to structure the revision of the paper section by section. It can also assist in keeping track of all reviewer comments and ensuring that one has carefully addressed each question or suggestion.

Carefully addressing all reviewer comments does not necessarily mean that one has to change the paper according to every suggestion; there may be times when a reviewer's suggestion does not make sense for your paper or when reviewers' comments contradict one another. The response letter, however, provides a format for communicating one's decisions to the reviewers and to the editor, and, in the cases in which one decides not to make a change, to justify that decision. For instance, the following two examples of suggestions from reviewers paraphrase a compilation of comments I received on my draft. I will detail how I responded to each of these suggestions.

[Suggestion 1: The author explained "what" happens in students' thinking, but it would be nice if the author could also address "why" the students may have been thinking as they did by pointing to any conjectures where such is reasonable in the Results section.] In responding, I added the suggested conjectures where feasible throughout the paper, and then described how I did so in my response. In the "response to reviewers" letter, I described how I made the changes: "In revisiting the results section, I have added conjectures about why students may have engaged in the kind of thinking they demonstrated. For instance, on p. 20 I added speculation about why Larissa may have deemed the 'opposite' as important when connecting back to the gears situation. In Episode 2, I have added an explanation as to why Timothy's justification might be transformational. In addition, in the discussion of the four mechanisms after each Episode, I now include additional conjectures as to why the students may have reasoned as they did." In general, this response communicated how I addressed the suggestion, while also including some specific examples without overwhelming the reviewers with a detailed list of every instance in which I made the suggested changes.

There may be times when a suggestion from a reviewer questions an issue that you believe you have already addressed. In cases such as these, it can be helpful to consider whether one has adequately communicated one's intentions; if a reviewer's comment appears to misunderstand one's work, then it may be a result of a lack of clarity. For instance, consider this response: [Suggestion 2: The characterization of students' justifications is not well defined. The study suffers from a severe lack of attention to any existing theoretical framework for mathematical justifications.] This type of suggestion might, at first glance, be something to ignore because in my theoretical framework I stated that I used Harel and Sowder's (1998) proof schemes framework. An alternative interpretation is that I was not explicit enough in my communication of the framework. Therefore, in rewriting my manuscript, I clarified the way in which I used Harel and Sowder's proof schemes framework and emphasized the definitions I employed for what counts as justification under this framework. Then, in responding

to the reviewer, I wrote an explanation such as, "My primary reference is to the existing theoretical framework provided by Harel and Sowder, instantiated in their proof scheme taxonomy. I clarified this connection in the Theoretical Framework section, and on p. 8 I explained how I follow their three-part definition for proof as the process of ascertaining, convincing, and persuading."

## CONCLUSION

We conducted studies that had quite different foci, ranging from preservice elementary teachers' conceptions of number and place value, to students' cognitive processes of generalizing and justifying in algebra, to an examination of the locus of authority in written curriculum materials. Despite the differences in the nature of our studies, however, as we shared our stories with one another at the NCTM Research Presession, we discovered a number of common processes we employed and challenges we experienced. We all found it important to determine how to properly focus our study for a journal-length article, had to negotiate ways to coherently structure our articles so that each of the sections related logically to the results we presented, and had to determine how to communicate the importance of our work to the mathematics education community. These are common challenges that arise in writing for academic journals, and explicating the ways in which we considered and addressed these challenges may provide a guide that will be useful to newcomers to the mathematics education community as they begin their own publishing journeys, as well as to those who mentor them.

In our process of becoming legitimate participants in the mathematics education community, one of the most helpful aspects of our interactions with other participants has been the listening to and telling of community-based stories. For example, when we get together with other novice and more experienced mathematics educators at conferences, we share our publication stories (successful and in process); discuss reviewer concerns; and discuss our approaches to writing, to responding to reviewers, and so on. We ask the more experienced participants for advice and ask them to tell us their stories and share their experiences. These kinds of stories are helpful and "have special, and especially effective properties with respect to the generality and scope of the understanding that learners come away with" (Lave & Wenger, 2002, p. 119). Through sharing problematic cases with us, our mentors have given us tools on which to draw when we encounter similar situations. We articulate our stories in this article as one way to share our experience with others and to increase the transparency of the writing and publishing process to improve opportunities for access to those who may have had fewer networking and mentoring experiences. We hope that this Research Commentary is useful in doctoral education as a springboard for discussion on writing research articles. In fact, we hope to encourage additional reports similar to this one on various challenging topics (for example, grant writing, teaching doctoral courses, etc.) to support newcomers to our field, as these kinds of articles will add to our collection of shared experience.

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