

Behind the door: a critical look at the process of publication in *Educational Studies in Mathematics*

Vilma Mesa, David Wagner

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To commemorate the 100th volume of *Educational Studies in Mathematics* (ESM) we invited all past and current editors to reflect on the journal's trends and internal processes. We complemented these discussions with comparisons of submitted and published manuscripts by countries of submitting authors. We found disparities in representation of articles from different countries and various attempts editors use to address such disparities. The analysis of internal editorial processes illustrates how editorial autonomy is exerted and raises questions about the necessity for higher editorial accountability, while maintaining the necessity of independent scientific judgment. We close the article with an open invitation to take up important questions about publication processes and their connection to the scholarship that is valued.



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Behind the door: A critical look at the process of publication in *Educational Studies in Mathematics*

Vilma Mesa
University of Michigan, USA

David Wagner
University of New Brunswick, Canada

Abstract: To commemorate the 100th volume of Educational Studies in Mathematics (ESM) we invited all past and current editors to reflect on the journal's trends and internal processes. We complemented these discussions with comparisons of submitted and published manuscripts by countries of submitting authors. We found disparities in representation of articles from different countries and various attempts editors use to address such disparities. The analysis of internal editorial processes illustrates how editorial autonomy is exerted and raises questions about the necessity for higher editorial accountability, while maintaining the necessity of independent scientific judgment. We close the article with an open invitation to take up important questions about publication processes and their connection to the scholarship that is valued.

Educational Studies in Mathematics (ESM) is publishing its 100th volume this year following its 50th anniversary. From its beginning, the journal has provided a space for advancing research in mathematics education internationally, while also nurturing a cadre of scholars from different geographical regions. The incoming and outgoing Editors-in-Chief, Arthur Bakker and Merrilyn Goos, asked the Associate Editors for ideas to commemorate these milestones. We (David and Vilma) proposed to write an article recounting part of the history of the journal, seeing this as an opportunity to reflect on the evolution of the field of educational studies in mathematics. Our colleagues were supportive of this idea.

There are a number of published retrospective analyses that look at the content of ESM and other major journals in the field. Inglis and Foster (2018) reported a computer-assisted textual analysis looking for trends in published articles in ESM and in the Journal for Research in Mathematics Education (JRME). About fifteen years ago, on the occasion of the 50th volume of ESM, there was a similarly reflective moment that resulted in analyses of trends in the field (e.g., Hanna & Sidoli, 2002; Lerman, Xu, & Tsatsaroni, 2002). Other retrospectives, unrelated to milestone celebrations, have been produced (e.g., Goos, 2018; Niss, 2018).

These analyses and commentaries were based only on published articles, implicitly suggesting that published research *represents* the scholarship in our field. The set of published manuscripts comprise the studies that are deemed publishable by reviewers and

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editors. The process of deciding which manuscripts are published is based on an understanding about what constitutes quality in reports of scholarship. Such understanding is guided by the values held by the editors, which are, in turn, partially influenced by their experiences and by regional concerns in mathematics education. Clearly, this is not an issue only for ESM, but an issue for all academic journals.

In our role as ESM editors, and given the large proportion of manuscripts that are rejected, we know that accounts based on published articles tell a partial story of the work of scholars in our field. Because we did not have permission to examine the contents of manuscripts that had been rejected and would not be able to secure this permission, we decided that it would be important to go behind the door to critically examine the process used in ESM to handle manuscripts, from the moment manuscripts are received to the moment a decision is made about their suitability for publication and to account for changes in this process since the time the journal was created. Our goal was to identify trends and changes over time in the process and criteria used by editors in managing manuscripts.

To accomplish this goal, we invited all past and current Editors-in-Chief and Associate Editors of ESM (20 individuals in total), to answer some questions about this process. David and Vilma interviewed each other, but we decided not to quote ourselves, as we, in the process of analyzing the information, are already including our own perspectives. The analysis we present in this article was guided by the responses to the following eight questions we asked the editors:

1. When were you Editor-in-Chief/Associate Editor of ESM?
2. What trends have you noticed in submitted manuscripts? (e.g., country of origin, methodologies, structure of articles)
3. What criteria have you used in selecting reviewers? (e.g., number of reviewers, country of origin, expertise)
4. What trends have you noticed in the concerns of reviewers? (e.g., social turn, political turn¹, methodologies, ...)
5. What makes a good review? How have you engaged with reviewers to assist them in becoming better reviewers?
6. What language and cultural issues have impacted the journal and thus the field? How have you handled these issues? (issues for authors and reviewers)
7. When writing decision letters, how have you selected and prioritized what to say? Which reviewers are most impactful?
8. Do you have further comments on how the field has changed during your time as editor?

All of the editors received a first draft of the manuscript for their corrections, additional comments, and suggestions. Altogether, we received input and feedback from 16 individuals, which were incorporated in this version. The article is organized as follows. We start discussing two ethical dilemmas that we faced when working on this article, followed

¹ See Gutiérrez (2013) and Wagner (2015).

² Community colleges are U.S. post-secondary institutions tasked with multiple functions (e.g., certification,

by a short history of the journal. We then present a section on trends in submissions by country both in published and in submitted manuscripts, including editors' perspectives of both the manuscripts and the reviews. The next section presents the processes used to manage manuscripts. We then pull together some themes into dilemmas and opportunities, and conclude with a section that seeks to start a conversation on these dilemmas and opportunities.

1 Two ethical dilemmas

Vilma and David are both currently Associate Editors of ESM. Each of us has published in ESM, accepted invitations to review manuscripts, and been invited to become a member of the Editorial Board; Merrilyn Goos invited us to become Associate Editors (Vilma in 2015, David in 2016). Our departing assumption in this article is that the role of an academic journal, in particular a journal such as ESM with its history and prominence, is to nurture and support a research community while making available high-quality research in the field. A good journal both shapes and reflects the development of the field, which is done through its processes for managing and making decisions about manuscripts. And all of these processes are carried out by people in the field.

For the most part, we, and the editors with whom we spoke, have been privy to everything that is done to every submitted manuscript. However, almost everything related to the handling of the manuscripts is not public. Some processes are not disclosed to authors, reviewers, or editors, and for good reasons. For example, blinding in the peer review process hides the identity of reviewers from authors and the identity of authors from reviewers. In principle, this process promotes reviews that are constructive, accurate, objective, and written without fear of jeopardizing personal relationships within the field. ESM uses a single-blinding process by which reviewers know who the authors are but the authors do not know who reviews their manuscripts. Reviewers do not know who the other reviewers are either. Such practices are known and accepted in scholarship at large; ESM's process is described on the journal's website. Reasons in support of the single-blinded review practice include the perception that it may be useful to have a reviewer who knows the context of the research and can provide an informed analysis of the work. Single-blinded reviews eliminate the issue of reviewers wondering why certain work is not cited (as part of the blinding process, authors may remove their own work), ascertaining whether the contribution is adding value compared to older work, and it gives reviewers and editors the opportunity to give more support to new scholars and to scholars from underrepresented areas.

Since 2003, ESM's editorial management system gives Associate Editors and the Editor-in-Chief access to all the hidden information for any given manuscript—namely the identities of authors and reviewers, the reviews that are submitted, the decisions, and the correspondence that goes back and forth between authors and editors. Such information could very well inform an accurate and interesting retrospective analysis of manuscript management practices in ESM.

Thus, our dilemma related to the following question: Do we have a right to use that information in our analysis for this article? It would undoubtedly provide a full account of the scholarship in the field, the topics and methods used; the concerns, trends, and practices of authors and reviewers; and the reasons for rejections or acceptances. However, the information that authors, reviewers, and editors have submitted to the manuscript management system was clearly provided for a different purpose: that of contributing to the field. The information was never intended to be part of a research study or to be subjected to an analytical process to determine trends. Because we did not have a right to use information available to us as Associate Editors (including manuscripts, reviews, and decision letters), we did not access that information. However, for one of the analyses, we downloaded a list of the submitting author's country and the final decision status for each manuscript submitted, without any personal information.

The second ethical dilemma relates to our decision to open the closed door and reveal to the field (and others) some of the processes that are not currently public. On the one hand, opening the door may undermine the faith in the fairness of the peer review and publication system in our field, because it may reveal the extent to which values, individual experiences, and beliefs play into the decisions regarding quality of manuscripts. Keeping the door closed on these processes may insulate the journal, and the field, from claims that ideology, and not scientific quality, guides the decision-making process. Again, this is not an issue only for ESM. It is important to maintain collective trust in these processes.

At the same time we strongly believe that there is value in opening the door to see the processes that go behind decisions about accepting manuscripts. The question in this regard is how wide we should open the door. We believe that we need to examine our own processes and offer them to the field. Scholars who are relatively new in our field may benefit from such an account of processes, as such processes may be understood better by scholars with more experience of publishing. Further, opening the door can stimulate a discussion about accountability—to maintain and build trust among editors, reviewers, and authors, and also to openly discuss and critique the values that define our field.

Editors' and reviewers' preferences for particular methodologies, ways of writing, foci, et cetera, are driven by their own positionality and values regarding research and their work. Those values are underwritten by their understanding and knowledge of the field and its development, their trajectories, and their interest in serving a larger purpose. We respect their judgment in relation to the field's values and also in how they select reviewers and decide the destiny of manuscripts. However, respect does not imply the avoidance of discussion. We sensed that every editor with whom we communicated made choices about how wide to open the door to their own processes as editors; while being candid with us, they also worried about how their responses could affect the field. Most of the editors spoke with passion about their dedication to the field, the importance of their work, and the labor of love and selflessness that is required to serve in this capacity. At the same time, we sensed that they were curious about the scrutiny that our project could lead to.

2 A brief history of the journal

ESM started in 1968 with Hans Freudenthal as the first Editor, serving for 10 years. He was assisted by Peter Hilton, who is credited with naming the journal (Beckers, 2019). The journal was created with the goal of being a “useful journal” (p. 15) that published educational studies with a focus on mathematics. The view was that the journal *l'Enseignement Mathématique* was not a venue for this kind of work. Since Freudenthal's retirement, the Editor-in-Chief position has been held, successively, by Alan Bishop (England), Willi Dörfler (Austria), Kenneth Ruthven (UK), Anna Sierpiska (Canada), Tommy Dreyfus (Israel), Norma Presmeg (USA), Merrilyn Goos (Australia), and Arthur Bakker (the Netherlands). The Editor-in-Chief is assisted by a group of Associate Editors, who have similar responsibilities in the management of manuscripts.

The number of Associate Editors has increased from one (Peter Hilton), to three when Ruthven was Editor-in-Chief, to four by the end of Sierpiska's tenure in 2005, to seven under Goos. Since the beginning, the journal operated with an Editorial Board, whose members were responsible, together with the editors, for reviewing manuscripts. The Associate Editors nominate scholars to become Editorial Board members, based on expertise needs and the quality of their reviews. The nominations are discussed among the rest of the Associate Editors, and finalized by the Editor-in-Chief. There is no time limitation to be in the Editorial board. Associate Editors are chosen among the Editorial Board members through a discussion among the Advisory Editors and the publisher, Springer. As of this writing, there is no time limitation to serve as an Associate Editor. The Editor-in-Chief chooses a successor among the Associate Editors in discussion with the Advisory Editors and Springer. Their tenure is for five years. Other responsibilities of the Editors-in-Chief include deciding on the publication of special issues, appointing Book Review Editors, guiding policy in response to trends in journal performance and the work of reviewers and Associate Editors, and handling questions raised by Associate Editors.

The number of Editorial Board members grew from 35 to 45 during Presmeg's editorship, in part as a response to the increased number of submissions and the diversifying nature of the areas of interest in the field. In Ruthven's time there were about 100 manuscripts submitted each year. Dreyfus handled about 150 manuscripts a year. By the end of Presmeg's tenure, five years later during 2013, it was 295, and during Goos's term in 2018, ESM was receiving about 300 manuscripts a year on average. This dramatic increase has multiple reasons: the increase of doctoral programs in mathematics education around the world, the active recruitment of scholars in countries with lower representation in publications, the growing prestige of the journal (see Bakker, 2019), the proliferation of international conferences beyond the International Group for the Psychology of Mathematics Education (e.g., Mathematics Education and Society, European Society for Research in Mathematics Education), the inclusion of ESM in the Social Sciences Citation Index list starting in 2011, pressures by universities to publish in highly ranked journals, and the online system that made it easier to submit manuscripts.

Table 1 documents the various periods in the journal and some of its growth. It lists the Editors-in-Chief, their Associate and Book Review Editors, the change in size of the Editorial Boards over time, and when available information about number of manuscripts submitted and accepted.

Table 1: Journal timeline

Year /Period	Editors-in-Chief	Associate Editors	Size of Editorial Board	Comments
1968	Freudenthal	1 Associate Editor: Peter Hilton		Publishes in English and French
1977	Bishop	0 Associate Editors. Erich Wittman is book review editor Christine Keitel is book review editor (1986–1992)	20	
1989	Dörfler	2 Associate Editors: Streefland and Hanna. Celia Hoyles is book review editor (1992–2005)	20	
1995	Ruthven	3 Associate Editors: Hanna, Streefland, Dörfler.	25	English becomes the official language of the journal
1998-2000	Ruthven	3 Associate Editors: Streefland retired, Steinbring added.	27	100 submitted manuscripts per year
2001-2002	Sierpinska	3 Associate Editors: Dreyfus, Presmeg, Steinbring.	34–35	
2003-2004	Sierpinska	3 Associate Editors: Boero, Presmeg, Steinbring.	34–35	In 2004 published a series of “papers” with video clips and other interactive features
2005	Sierpinska	4 Associate Editors: Barton, Boero, Presmeg, Steinbring.	35	
2006-2007	Dreyfus	4 Associate Editors: Barton, Boero, Presmeg, Steinbring. McKenzie A. Clements is Book Review Editor (2006–2008)	33–34	~150 submitted manuscripts per year

2008	Dreyfus	4 Associate Editors: Boero, Morgan, Presmeg, Steinbring.	34	
2009	Presmeg	4 Associate Editors: Boero, Morgan, Radford, Steinbring. FitzSimons is book review editor (2009–present)	32	183 manuscripts submitted; 60 accepted
2010	Presmeg		35	222 manuscripts submitted; 87 accepted
2011	Presmeg		45	280 manuscripts submitted; 101 accepted
2012	Presmeg	5 Associate Editors: Boero, Goos, Gutiérrez, Morgan, Radford. Steinbring stepped down	45	260 manuscripts submitted; 99 accepted
2013	Presmeg	5 Associate Editors: Boero, de Freitas, Goos, Gutiérrez, Radford. Morgan stepped down	45	295 manuscripts submitted; 86 accepted
2014-2018	Goos	7 Associate Editors by 2015: Bakker, de Freitas, Gutiérrez, Mesa, Radford, Van Dooren, Wagner. Wagner replaced Boero in 2016	45	Number of manuscripts submitted per year range from 274 (in 2015) to 322 (in 2017); accepted manuscripts range from 55 (in 2017) to 66 (in 2015)
2019	Bakker	7 Associate Editors: Van Dooren, de Freitas, Gutiérrez, Meaney, Mesa, Radford, Wagner.	45	115 manuscripts submitted as of April 30 th , 2019

Sources: Personal communications with editors; several Educational Studies in Mathematics Publisher's Reports supplied by Springer; authors' manual searches in various article databases (e.g., JSTOR) and in physical volumes.

3 Trends: manuscript sources and reviewer concerns

We begin our analysis by looking at trends in countries of authors in published and submitted manuscripts. We then present trends that editors noted both in the manuscripts submitted and in the concerns of reviewers who appraised the quality of the manuscripts.

3.1 Trends in country representation

There are 73 different countries represented in ESM's published articles, which confirms the international reach of the journal (counting the countries of all authors including corresponding authors and co-authors). However, the distribution among the countries over its 50-year history is not uniform, as the bulk of the publications has come from authors in eight countries. Table 2 shows the countries that have authors appearing 100 times or more since the inception of ESM in 1968. Table 3 groups the remaining countries in order of author appearances in the journal. In these two tables we counted the number of times that an author was named; thus, a scholar who has been an author or co-author of seven articles was counted seven times. In total there have been 3,613 author appearances up to, and including, Volume 100, Issue 1.

Counting is a political act. We mention six caveats regarding the counting in these tables. First, counting authors rather than articles assigns greater weight to countries where multi-authored articles are more common, perhaps because opportunities for substantial funding of research are greater, perhaps reflecting a culture less inclined to privilege the sole-authored article. Second, the politics of our counting required us to make decisions about assigning countries to authors. ESM has not always identified the countries of contributing authors. To manage this absence of information, we performed internet searches and drew on personal networks to identify the countries of some authors, sometimes relying on the most recently known affiliations to fill in the gaps. Third, many authors work in a different country from their country of birth. In those cases, we are privileging the countries in the institutions where those scholars work. Fourth, there are many cases of scholars who have moved from a country with low representation in the published scholarship to one higher in the lists. Fifth, there are also scholars in our field who work in multiple countries concurrently (and who have to decide how to represent themselves when they submit their work to ESM). Also, there have been many geopolitical reorganizations since 1968. For example, authors whose affiliation was West Germany before unification were counted according to the current borders and thus as being from Germany; we applied this principle to other countries as well. Despite these complications, the data give us insight into the field and its politics.

Table 2. Countries with authors appearing 100 times or more since the inception of ESM (1968)

Countries with 100 or more ESM author appearances	Number of Author Appearances
United States (USA)	938
United Kingdom (UK)	493
Israel	268
Canada	236
Australia	232
France	195
Germany	187
The Netherlands	148

Note that all the countries listed in Table 2 have multiple PhD programs in mathematics education; the list includes scholars who pursued PhDs in those countries “and are ‘scientifically enculturated’ into the concerns of their professors in those programs and their methodologies, including the choice of research subjects and the analytical strategies” (Boero). This list of countries raises questions for us about whose research is being represented—the concerns of which people? This question becomes even more significant with Table 3, which lists the countries of all other authors who have appeared in ESM (except for three authors for whom we could not identify their country), organized in groups of countries by number of appearances.

Table 3. Number of authors by groups of countries with fewer than 100 appearances

Countries with fewer than 100 author appearances*	Author appearances
Italy, Spain, Belgium, Sweden, Greece	50–99
South Africa, Cyprus, Denmark, Poland, New Zealand, China, Mexico, Norway, Brazil, Finland	20–49
Portugal, Austria, Romania, Japan, Lebanon, Switzerland, Turkey, Hungary, Taiwan, New Guinea, Russia	10–19

Czech Republic, Colombia, Hong Kong, Peru, Ireland, Singapore, Slovenia, Chile, Malaysia, Nigeria	5–9
India, Kenya, Mozambique, South Korea, Argentina, Botswana, Iran, Kuwait, Macau, Burkina Faso, Estonia, Indonesia, Jamaica, Lesotho, Luxemburg, Morocco, Sudan, United Arab Emirates, Bangladesh, Fiji, Malawi, Namibia, Philippines, Serbia, Sierra Leone, Sri Lanka, Thailand	1–4

*Countries listed in descending order of author appearances.

Table 3 is notable also in at least two ways. It again supports the notion that the journal has an international reach. However, as we go down the rows, there are more countries in which English is not a language universally spoken.

It is important to read both, Table 2 and Table 3, with consideration that the authors' countries vary in population, the number of universities, the number of people with PhDs, the number of people with university education, the number of PhD programs in mathematics education, the number of researchers of mathematics education, etcetera. For example, in Table 2, comparing two countries that have approximately the same population, France and the UK, there is a significant difference in the number of author appearances. It is clear that the research, and thus also the concerns of scholars in certain countries, are more strongly represented than the research and concerns of scholars in other countries.

These concerns would include what problems they identify as warranting attention, and, related to these problems, which methodologies and theories are most important. Further, because the reviewing process relies on scholars who are active and well-respected in the field, it is likely that the reviewers too are most well-informed of the concerns associated with these regions. Some research is done by scholars outside their own countries, but the concerns of those other countries and the research findings are mediated through the foci of the scholars from outside. As a whole, this emphasis supports the thesis that published research amplifies and privileges the concerns of scholars in the well-represented countries. Insofar as the journal aims to represent the scholarship in the field, this disproportional representation may suggest that what is being published is a non-representative picture of what are the concerns of all scholars in mathematics education. Again, we note that this issue is not unique to ESM.

Table 4 provides additional information using the country of origin listed by the corresponding authors of manuscripts. This table was created using information available to editors in the Editorial Manager system for all submissions since 2003 (starting during Sierpinska's term as Editor-in-Chief). It presents countries and groups of countries, together with the proportion of manuscripts accepted for that country or region. Countries are separated from their region if they have at least 50 submitted articles or at least 10 accepted articles. The separation between Eastern and Western Europe follows the former

Iron Curtain. Tables 2, 3 and 4 together reflect that both the number of submissions and the likelihood of success of a submission are factors of how established the mathematics education research community is in the region and how well-connected the community is to others.

Table 4. Proportion of accepted manuscripts since 2003 by location of corresponding author, ordered by number of submitted manuscripts

Region	Number of Manuscripts Submitted	Number of Manuscripts Accepted	Percent Accepted
USA	909	237	26%
China	725	52	7%
Asia & Pacific Islands (except China, India, Iran, Taiwan, Turkey)	262	31	12%
UK	226	127	56%
Turkey	198	10	5%
Western Europe (except France, Germany, Greece, Italy, the Netherlands, Norway, Spain, Sweden, UK)	164	66	40%
Canada	163	81	50%
Israel	148	71	48%
Australia	124	43	35%
Latin America	113	26	23%
Spain	107	25	23%
Eastern Europe	98	9	9%
Sweden	89	28	31%
Germany	84	40	48%
Iran	83	1	1%
South Africa	76	16	21%
The Netherlands	63	26	41%
Italy	58	32	55%
Greece	58	15	26%
India	58	1	2%

Taiwan	57	6	11%
Norway	53	16	30%
Africa (excluding South Africa)	51	2	4%
France	50	34	68%
New Zealand	25	14	56%
Totals	3,384	960	28%

It is important to note that for some countries more than others, the acceptance rate is significantly impacted by the alignment between submitted manuscripts and the scope of ESM. Goos notes, for example, that when she was Editor-in-Chief, “virtually all the manuscripts from [Iran and India and to a lesser extent from China] were submitted by mathematicians writing about a piece of mathematics, and were rejected without review because they were clearly outside the scope of ESM.”

We highlight two further points from Table 4 to illustrate the kinds of comparisons that could be done, keeping in mind that rejections occur for many different reasons, which, in many cases, are related to understanding the journal and the field. First, submissions since 2003 from countries in the second and third rows of the table combined—that is China and countries in Asia and the Pacific Islands—are slightly higher than the submissions from the USA, yet just 8% of those papers are accepted. Second, there are stark differences in proportion of published manuscripts in groups of countries that submit similar numbers of manuscripts. For example, for Germany and Iran (84 and 83 submissions respectively) the proportions are about 50 to 1; for Italy, Greece, and Taiwan (58, 58, and 57 submissions respectively) the proportions are about a half from Italy to Greece, and about 13 to 1 for Greece and Taiwan; and for the whole continent of Africa (excluding South Africa) and France (51 and 50 submissions respectively) the proportions are 17 to 1. There are very wealthy countries among the set with high submission rates and low proportions of accepted manuscripts; there are also English-speaking countries among the set with high submission rates and low proportions of accepted manuscripts; and countries with high submission rates and low proportions of accepted manuscripts are located side by side countries with high acceptance rates, etc. With these examples and other comparisons, we see that it is not a single factor of language, location, or political organization alone that can explain these trends. The table opens the possibility for exploring what else might be operating in this situation. Additionally, we note that we have chosen country of origin as a dimension of focus though we know there are other significant possibilities for comparison such as gender, race, ethnicity, and socio-economic status.

3.2 Trends in submitted manuscripts

We asked the editors of ESM to describe trends they saw in the submission of manuscripts. The Editors-in-Chief highlighted various ways in which they saw changes in the field, including growth in submissions, content, and in countries and regions producing

scholarship, all of which impacted the journal. They also expressed a commitment in making sure that the journal responds to those changes. We foreground their comments because they saw the full range of submitted manuscripts, and draw on the comments by the Associate Editors as needed.

Dörfler characterized the early years saying, “the research community of math education at that time was still rather small and almost everybody knew everybody else. Thus, the editors mostly were acquainted with the authors—for example, from conferences, and on that basis also the choice of reviewers occurred.” During her tenure, Presmeg saw an increase in submissions from Asian countries and characterized ESM as “fully international.” She applauded Freudenthal for accepting manuscripts written in French and English because that conveyed the message of ESM being a truly international journal. Goos identified Turkey and Iran as countries submitting significantly more manuscripts in recent years. Bakker added that he has heard the same from science education journal editors. Goos noted, in general, a “huge increase in the number of manuscript submissions over time.” In 2006 there were 115 submissions, in 2009 there were 187, and now it is around 300 per year—double the submissions in a decade, but with no increase in the number of acceptances (thus a decrease in proportion of acceptances). She pointed to the increasing pressure to publish, especially in ESM due to its prestigious position in the field: “universities are increasingly using journal metrics for both academic performance management and to make decisions about career progression.”

Editors noted various changes in content. Dörfler said that in the early years “the proportion of theoretical papers in relation to empirical research was significantly higher than it is now. It was also the time of “psychological studies focused on the individual learner which was even enforced by the, at the time, very dynamic (radical) constructivism (Glaserfeld, Cobb, Les Steffe).” He attributed the lack of attention to cultural and language issues to what he saw as “geographical homogeneity of submissions.” Presmeg said that the turn to the social in the 1980s, evidenced in debates about removing the reference to psychology in the name of the Psychology of Mathematics Education conference, saw the beginning of qualitative research in the field. Goos described seeing an increased range of “extremely eclectic” theories used in submissions. And Bakker noted that recent quantitative submissions are using more “sophisticated statistical techniques that are sometimes so technical that we fear the ESM audience would not understand or appreciate them.” This raises the tension we editors and authors face between meeting our readers’ knowledge and educating them. Presmeg also noticed a change in the length of submissions, possibly in response to these content changes; it was common for ESM to publish short reports, but nowadays the practice is to publish full-length manuscripts (not exceeding 8,000 words). Some editors have noted that with the increasing range of approaches brought to the field, some people have complained about the decreasing concentration on mathematics in ESM articles.

Language has changed too. In the early years ESM allowed submissions in English, French, Spanish, but according to Dreyfus that policy disappeared, “probably when Ken [Ruthven] was Editor-in-Chief.” He does not recall receiving papers in Spanish, but does recall important French papers in the 1980s. For him, language editing was a problem as a non-

fluent English writer and questioned fluency in English as being “part of the work of a math educator.” He applauded Presmeg’s work because she provided very extensive language support to authors whose first language was not English. He and other editors noted that because Springer and prior publishers did not seem to be willing to pay for editing services, any language support must come from the editors and reviewers. Currently, Springer offers a modest amount of support for language editing.

Editors noted that there are perspectives associated with regions, which sometimes are tied to language. Dörfler described that at his time, the geographical spread of submissions was mainly from Europe and North America, dominated by English speaking countries, although there were some contributions in French. Presmeg pointed to the French use of the theory of didactic situations (TDS, didactique) as examples of the range of perspectives that come with diverse languages or language groups; most of the scholarship using TDS is published in French. Similarly, Bakker pointed to the German traditions of Bildung and Stoffdidaktik which are also published in German speaking journals.

All the editors expressed the wish to be able to respond to the expansion by being more supportive of underrepresented regions and cultural perspectives. For example, Goos said, “a manuscript has never been rejected solely because of the English language and expression.” She intentionally assigned manuscripts to editors who had linguistic or cultural familiarity with particular authors and contexts. She and some Associate Editors said they have been willing to pursue several rounds of revision for authors who are not proficient in English. Morgan gave a detailed response that described practices we heard from multiple editors:

My approach has been to attempt to make sense of a manuscript while ignoring problems with the English at the first review stage. ... When a manuscript was very near to acceptance, I would communicate with the author, making concrete suggestions and in some cases corrections to improve the language (often using tracked changes on the manuscript). ...A particular concern of mine is with the handling of textual data. Some authors seem to be under the impression that they may only use English within a manuscript. When there is detailed analysis of textual data it is sometimes necessary to recognize differences between analysis conducted on data in the original language and an English translation. I have tried to encourage authors to include original data alongside a translation and to make explicit comments where the analysis relies on the properties of the original language. This can raise issues about word count but I have been prepared to support arguments for the need to be flexible in such cases.

We believe that giving additional support to contributors who do not use English as a first language is important, but not sufficient, to address the disparity in the proportion of accepted manuscripts that we have seen. The editors said that much of their work to support the development of research from underrepresented contexts is done outside of the reviewing process—with visits and talks given in such locations, by extending personal

invitations to scholars, and by being on the lookout for reviewers and Editorial Board members from underrepresented areas.

3.3 Trends in reviewer concerns

We asked participant editors what trends they have noticed in concerns of reviewers, especially identifying the social turn, the political turn, and new methodologies, as possible trends for them to comment on. Their responses did not suggest concerns regarding social or political turns, and although there were some concerns regarding methodologies (e.g., the proliferation of large-scale studies), most of the concerns mentioned were about the quality of the research and how it was conveyed through the report. What we know about concerns in the earlier days comes from editors' publications concerning the qualities of research described in the manuscripts (Dörfler, 1993; Ruthven 1996) and from expressions of concern that there was a trend towards scholarship in which mathematics was not central (e.g., social aspects were foregrounded and mathematics was not). The editors, however, expressed an interest in being open to new developments in the field even when they knew that some scholars in the field may resist those. They indicated that the journal should be inclusive of the high-quality work from all the scholars in the field.

The increase in submissions demanded a larger pool of Associate Editors and Editorial Board members and a need for diversifying their expertise. In answering the question about trends in reviewers' concerns, their responses referred to more general characteristics of the research and the manuscripts and some that reflected their expertise. They mentioned reviewers' concerns regarding the contribution of the work to the field (i.e., is this really novel? Does it speak to open problems in the field?). Some noticed concerns with a lack of methodological details, especially for quantitative articles, or insufficient contextual information, and little to no disclosure of power relationships between researchers and research participants. Some of the editors noticed an increased concern for language, cultural aspects, and diversity. Regarding the manuscript itself, their concerns centered on the lack of internal coherence (i.e., between problem, design, theory, methods, analysis, findings, conclusion, and claims) which in some cases could point to problematic research studies. All editors noted an increase in submissions from countries that are under-represented in the journal, (e.g., China, Turkey) and more submissions in which the role of the mathematics is not made clear in the paper. Insufficient attention to the role of mathematics (Presmeg) and, as noted by Goos and others, insufficient attention to the educational aspects of mathematics have been a main reason for "outright" rejections.

Language and cultural challenges are not limited to authors from underrepresented countries. A number of the editors expressed frustration with manuscripts in which authors assume readers know a lot about their country's context. This problematic assumption ranges from ambiguous descriptions of locations—for example, "a West coast city"—to lack of elaboration of education structures, curricula, and social policy contexts in the country.

4 Review and editorial processes: from submission to decision

In this section we present an account of the processes that are involved in managing manuscripts. We organize it by describing the work of the editors, the process of assigning reviewers, expectations for reviews, and making decisions on manuscripts.

4.1 The work of the editors

In the early days, four copies of the manuscripts were sent by post to the editorial office; as word processors became more common, authors were asked to send a computer diskette with their manuscript specifying whether they had a “Windows or a Macintosh” operating system. The editorial office accepted all common word processor formats (e.g., Word Perfect, Word, LaTeX). Nowadays, the manuscripts are submitted to the journal via the online portal administered by Springer (<http://www.editorialmanager.com/educ>) where they are first subjected to a plagiarism check. Next, the Editor-in-Chief is alerted to the submissions. The Editor-in-Chief screens the submissions to make sure that the manuscripts are appropriate for the journal (i.e., they report an educational study in mathematics). Some manuscripts are rejected at this point for two main reasons, length or not fitting with the scope of work published by the journal. The Editor-in-Chief may ask the authors to revise a manuscript that exceeds the 8,000-word equivalent limit (e.g., figures count for the number of words their space would occupy), or suggest other journals that might be more appropriate for the topic at hand. The remaining manuscripts are distributed among the editor team, including the Associate Editors and Editor-in-Chief, according to their areas of expertise. The editor who receives the manuscript is sometimes referred to as the handling editor.

From this point on, the decisions are solely the responsibility of the handling editor. The handling editor may also return manuscripts to authors prior to revision when there are major problems that would predictably result in Editorial Board members or other reviewers saying that the manuscript does not meet minimal standards. A key question is one of minimal quality; but sometimes it is more time effective not to send out a manuscript for review because the editor can easily anticipate that the submission will be rejected (e.g., unclear research problem, or methods, or lack of analysis, etc.). Such a decision reduces the load for Editorial Board members, protects reviewers’ time, and gives the authors a set of suggestions to improve the manuscript much sooner than if the manuscript is sent out for full review. The author has then the option to revise the manuscript, and upload it so it can be sent to review, or withdraw it. Handling editors can also reject the manuscript without sending it for review for other reasons, including manuscripts that do not deal with substantial mathematical ideas, or in which mathematics is only a backdrop for the study, or studies that do not acknowledge the international character of the journal (e.g., they may refer only to issues that focus on local concerns without making connections to how they might be of importance to scholars in other countries).

When sending a manuscript for review, the handling editor identifies reviewers (see Section 4.2), upon which the Editorial Manager system sends an e-mail invitation to each reviewer that includes the title, the abstract, and the time for submitting a review

(currently 28 days). Reviewers are given 10 days to accept or decline the invitation. Once at least three reviews are uploaded, the system sends a notification to the handling editor. The handling editor then makes a decision based on the reviews (see Section 4.3), a process that may take between one and four weeks. We have access to yearly averages of time to decision since 2009. The average to a first decision on a manuscript has ranged from three to six months. The average time for a reject decision has ranged from three to six and a half months. Acceptance time has ranged from an average of nine to an average of 15 months. This range is explained by the time that it takes authors to submit revisions, the time reviewers take to submit their reviews, and the multiple rounds of review that may take to get a paper into publishable shape. Springer does not provide much editorial assistance beyond formatting and reference checking, and thus it is the authors' and editors' responsibility to do the bulk of language editing, which is particularly significant for authors and editors for whom English is not their native language.

Editors-in-Chief are responsible for managing special issue requests. Researchers interested in publishing a special issue submit a proposal directly to the Editor-in-Chief, who circulates it among the Advisory Editors (i.e., previous Editors-in-Chief) and, more recently, also among Associate Editors for discussion. The Editor-in-Chief uses their feedback to compose a letter to the authors indicating what is needed for the special issue proposal to be accepted. If accepted, a shadow editor, selected from one of the Associate Editors, is assigned to oversee the remaining process. All manuscripts submitted for a special issue go through several rounds of review, first among the authors and editors of the special issue, and then through the same review process as the rest of the manuscripts published in the journal.

Book reviews are sent directly from the Editor-in-Chief to the Book Review Editor, who follows a similar process as described above. Gail FitzSimons, the current Book Review Editor, writes that "although there are some unsolicited book reviews submitted online, it is more common to receive requests for particular books to be reviewed, sometimes from publishers, sometimes from the authors themselves, and sometimes from interested third parties." When a publisher or author invites her to have a book reviewed, she finds out as much as possible about the book from the publisher websites. If she determines it might be interesting for ESM readers, she requests suggestions for potential reviewers to ensure that the reviewers are likely to be familiar with the theoretical framework or context of the book. Almost all of the book reviews she has received have been published after a process of interaction between her and the book review author. This interaction is especially lengthy when authors are early career academics or non-native speakers of English. FitzSimons reports that her "main focus as editor is on readability, logical organisation, grammar, and the APA referencing style" and her goal "is to support not only the reviewer, but also the book's author(s), as well as to inform the broader international community of ESM readers."

4.2 Assigning reviewers

In the current review process the handling editor selects three reviewers, assigned on the basis of their expertise, with at least one chosen from the Editorial Board. Editors consider

the authors' countries of origin as part of their criteria for creating a slate of reviewers. Editorial Board members are almost always included because they are quite familiar with the journal standards and therefore can uphold those standards when assessing the quality of the manuscripts they review.

This process of review assignment has been in place since the beginning of the journal. The number of Editorial Board members included in the pool of reviewers assigned to every manuscript varies according to the nature of the topic of the submission: Sometimes an editor will be content with one Editorial Board member reviewing and sometimes the editor wants three. In rare occasions no Editorial Board members are assigned.

Dörfler indicated that he handled all the manuscripts in equal share between himself, Gila Hanna, and Leen Streefland, and that he relied only on the Editorial Board for the reviewing process. Ruthven indicated that when sending manuscripts for full review, he "assigned one of the Editors (myself included) to manage the review process." At least one would be an Editorial Board member who was proficient in the manuscript's language; the norm was to have three: "a couple chosen on the basis of expertise and relevant contextual knowledge, and one [who would] provide a broader perspective."

By the time that Dreyfus was Editor-in-Chief, his role had changed to mainly assigning Associate Editors as handling editors who would be responsible for shepherding the manuscripts until a decision was made. He sought to select an Associate Editor (from among the pool of four) whose interests matched the manuscript; he also considered how many manuscripts the Associate Editors were handling at the time. During his time the decisions were by then all fully made by the Associate Editors. In his role as Editor-in-Chief he handled the desk rejections.

To assign reviewers, Presmeg created a spreadsheet outlining the expertise for each Editorial Board member and Associate Editor. She counted herself as a full member of the editorial team, and assigned manuscripts equitably to all editors, including herself. She would select four people as potential reviewers, invite three immediately, and reserve the fourth as a backup. On average an Editorial Board member would review 12 manuscripts a year. Her practice was to select two Editorial Board reviewers and a third reviewer who would be aware of the context of the paper or the theoretical orientations. Goos, as Associate Editor, similarly strove for three reviewers, and sent letters that alerted the reviewers about the expertise she was calling on for a particular manuscript. She made an effort to assign reviewers that shared linguistic or cultural traditions with those of the authors; she also used the reference list of the manuscript as a source of reviewers. In assigning three reviewers, she sought to create a "microcosm" of ESM's readership by choosing experts on theoretical or methodological aspects of the paper.

Nowadays, reviewer assignment continues to be a task of the Associate Editors. They select typically three reviewers, attending to their expertise on the manuscript's content (theory, problem, methods), to the country in which the research is situated, either to control for possible conflicts of interest or to provide the necessary context; and to their reviewing load. Editorial Board members should not have more than two manuscripts assigned at any

given time. Some Associate Editors said that they intentionally seek reviewers with the required expertise who are either novice or from a country that is not well represented in the journal with the goal of expanding the journal's reviewing pool.

In Goos' tenure (2014–2018), the time given for the reviewers to submit a review was changed from six to four weeks in an attempt to reduce the time to reach a decision. Reviewers often request extensions to submit their reviews. The handling editor may reassign reviewers to replace reviewers who have exceeded the number of weeks or encourage reviewers who are late because of their unique perspective on the manuscript; such reassignment and negotiation adds up to the time to decision.

4.3 Expectations for reviews

Once they accept the invitation, reviewers can download the manuscript. Some choose to annotate their manuscript; most respond to a series of questions about the manuscript (given in the Editorial Manager system, see Appendix) and write their review, in the majority of cases, as a detailed narrative explaining their understanding and assessment of the quality of the paper, with a recommendation regarding the publication in the journal. In answering the question of what makes a good review, the editors mentioned two criteria that they used to judge its quality, whether it helps the editor argue their decision and whether it helps the authors produce a better manuscript.

A good review shows that the reviewer engaged “seriously with the argument of the submission” (Ruthven) and the concerns of the author(s) (Morgan); it includes a summary, from the reviewer's perspective of what the “author tries to achieve... including a positioning of the reviewer” vis a vis the paper including explicit details for why something is well done or needs more attention (Dreyfus). A review is an in-depth analysis of the manuscript with a well-argued appraisal or opinion about its quality (Presmeg). When asking authors to improve the manuscript, a good review includes concrete and detailed suggestions about how to do so: adding to or organizing the literature, or theoretical framing, methods, or analysis (Goos, Morgan), without seeking to “radically alter the nature of the research reported” (Morgan). Good reviews include honest compliments about the work before launching into problematic aspects of the paper and avoid too much technical language (Barton), and they provide insights about the internal coherence of the manuscript (Bakker). Good reviews are usually comprehensive: they address all aspects of the paper and both local and global issues (e.g., methodology, language, structure, reasoning, significance—Barton, Gutiérrez). However, sometimes editors ask for a reviewer to focus on one particular issue or question. Good reviews also recognize the contribution of the paper (Radford), even when that is not made explicit in the manuscript or is different from what the manuscript identifies as its contribution. Armed with a set of at least three reviews, the next step is to make a decision based on them.

4.4 Making decisions

In the early days, the field was small enough that it was easy for the small group of editors to be in constant consultation with each other prior to making a decision for publication for

each manuscript (Dörfler). They used the reviews submitted together with the marked paper copy to compose a decision letter that was sent to the authors via post. The marked manuscript was usually included.

The process is similar today, except that the handling editors are fully responsible for writing a letter to the author synthesizing the reviewers' comments. In writing their letters, the editors indicate the important contributions as well as the major areas of concern identified by the reviewers and use those to argue one of five possible decisions: reject, reject but with an invitation to send a revised manuscript that uses the feedback, major revisions in which, if the concerns are addressed, the revision may lead to an accepted manuscript, accept with minor revisions, or accept as is. Manuscripts are rejected when there are serious problems (e.g., mismatch between design and data collected, insufficient data collected for answering the question, lack of recognition of current literature, etc.). If there is a sense that it may be possible to re-write the paper using a different theoretical lens or analysis, a decision might be a reject with an invitation to submit a new manuscript. In a major revision decision, the manuscript may have a structural issue, or miss some relevant methodological information or theoretical framing that the author may not have included but that appears to be available, or may have some claims that are not warranted; a minor revisions paper may involve minor language issues, require some explanation on some findings, or a clearer discussion.

Editors' decisions are always informed by their own reading of the manuscript; all editors indicated that on many occasions they add their own areas for improvement and strengths to the letters, and that they use the letters to add perspective to the reviewers' comments, especially if they appear to propose contradictory ways to improve the manuscript, something that occurs frequently. The editors indicated that in writing their letters, they strive to convey ideas to the authors so they can produce a better version of their manuscript. Some editors indicated that they make sure to start and end the letter with some positive element of the work. Others said that they write clearly what they want to see in a revised version, when they ask for one. Revisions of rejected manuscripts are treated as new manuscripts. Manuscripts that receive a major revisions decision are usually sent to at least one new reviewer and at least one of the prior reviewers. Minor revisions decisions are usually, but not always, handled by the editor only. It may take many iterations between the editor and the authors, until a paper is finally accepted.

Editors face important dilemmas in making decisions about manuscripts, especially when they are "novel" but with serious methodological problems (Boero). Papers that build on "existing research trajectories" and that rely on particular, mainstream traditions or methods, may have a review process that is smoother, and may result in more acceptances. Boero indicated that a risk of this process, is of course, that the continued acceptance of papers that belong to mainstream traditions will result in the homogenization of the field, because the "relationship between cultural-epistemological choices is inherent in current globalization trends in mathematics instruction." He noted that editors, in making decisions, need to take risks against the potential erasure effect of globalization that renders invisible particular "cultural values in many regions of the world."

Related to this, the editors we talked to noted the important relationship between research problems and methods in social science research. Additionally, the context usually determines the problems that researchers need to deal with. Moreover, in an international journal, editors need to acknowledge that belonging to a particular context will inform the scholars' interests and how they satisfy them, and that these contributions may counter mainstream traditions; this does not make them less valuable.

Given the importance of reviews for decision making, it was interesting to note different approaches to building capacity in the reviewer pool. As a whole, the review process is assumed to have an educative function. We infer that this assumption led most editors to not describe strategies that support new reviewers in producing better reviews. All reviewers receive the Editor's letter which includes each of the reviewer's letters; it is assumed that, by reading them, reviewers will glean insight on how to improve their reviews. While some editors indicated being intentional to include new reviewers, none described any additional steps (e.g., commenting on ways to make a review better). In part, this absence may be because the reviewers are mostly chosen from the Editorial Board, who have been chosen to be in the board because they produce good reviews. Thus, it is understood that the Editorial Board reviews are upholding the standards of publication of the journal, even though discussions of these standards or documents describing them are not available.

5 Dilemmas and opportunities

Before discussing the various issues we have identified in this project of opening the door, it is worthwhile to state our positionalities. David's father and maternal grandparents were refugees, but David grew up with privilege—white, heterosexual, cisgender, male, Canadian, English speaking. David's research focuses on human relationships in mathematics education contexts—motivated by his observations of cultural differences in mathematics education practices through his six years of teaching in Canada and three in Swaziland. Vilma—a cisgender, heterosexual female, immigrant to the USA from Colombia—did not grow up in the privilege of wealth or gender, with which she wrestled as she pursued male dominated fields, computer science and mathematics; her mother, a peasant woman trained on the job as a nurse, but with a keen eye for unfair working conditions and abuses of power, showed her with her example how to point out unjust practices and to stand up for responsible accountability. She has taught at prestigious private and public universities in Colombia and the United States, both mathematics and mathematics education, and currently studies mathematics instruction and resource use in post-secondary contexts with an emphasis on community colleges², an under-researched setting in higher education.

We both recognize our privilege and feel a responsibility to speak up when processes may mask structural and systemic inequities. Our perspective makes us aware of disparities in

² Community colleges are U.S. post-secondary institutions tasked with multiple functions (e.g., certification, vocational training, transfer to a university, etc.) and that draw from a population that has, for a variety of reasons, traditionally been denied access to high-quality education.

sources of manuscripts and the impact of these disparities on our field. Our recognition of these disparities motivated us to document trends to determine how significant they have been in the field. This article is a result of this documentation. While our findings underscore the significance of our own earlier observations as editors, we find that our investigations raise further issues for our field, which we identify below.

5.1 Globalization of mathematics education problems: Homogeneity problems and language as a marker

An important question for us is the extent to which the scholarship that is being published is truly international. We can readily answer yes, because we only have to look at the number of countries of authors of published manuscripts or at the number of manuscripts submitted by authors from different countries. At the same time, it is evident that the answer is more complicated. First, the journal description on the website says, “The emphasis is on high-level articles which are of more than local or national interest.” By requiring that articles address more than local or national interest areas, we may be requiring authors to tie their local research concerns to research problems that are actually problems in the countries with more representation in the journal. For example, a paper may be rejected for not being novel enough internationally, even though it was the largest study in its country surveying an important phenomenon there. We are, in a way, requiring that scholars engage in solving problems that may be of little relevance or applicability for their contexts; is this a fair request as we strive to advance the field?

Second, even when authors submit work that has the potential to “advance the field” (whose field, anyway?), by requiring that articles do so in English directly privileges scholars for whom access to the English language is possible. The requirement of having English as a lingua franca for the research community strips away from the conversation voices that could actually advance the field further (cf., Meaney, 2013, Mesa, 2004). It takes time for editors to work with scholars for whom English is not a first language and it is frustrating for reviewers to read through a manuscript that has language mistakes that can be distracting from the focus of the manuscript. Are we willing to dismiss international scholarship because it cannot be translated first, into the problems of the field and second, into the language of the community? And while we might not be able to support a multilingual publication, it is important to keep in mind that when we say that ESM is an international journal that publishes studies in education and mathematics, we may have a very narrow definition for the word international.

5.2 Autonomy vs. accountability

Editors are autonomous in their work and the decisions they make are final. This autonomy implies that the field understands and expects that editors use fair judgment following ethical practices. Currently there is little discussion in the mathematics education field about what constitutes ethical practice. Among editors, there is discussion about how to respond to unethical manuscripts (e.g., plagiarism) but not about the many questions we face in rendering decisions. Fair judgment and ethical behavior are also required for making decisions about the time we spend on editorial assignments, including whether or

not to take an editorial role in the first place, given our other responsibilities. Editors need to be active in research in the field to empathize with author and reviewer concerns, as well as the concerns of society and research participants, and they need to be cognizant about the standards that support high quality research.

But autonomy requires accountability. Editors are not merely accountable to the standards of quality of research in the field; they are also accountable to other editors, authors, and reviewers. Once editors are appointed, how is performance evaluated? Our work is contingent on the perceived fairness of our judgment and the quality of our interactions with others. Authors judge our decisions but rarely raise their concerns with us due to obvious power relations. Reviewers may judge our decisions on the basis of our consideration of the recommendations they made about particular manuscripts. They rarely raise concerns regarding our decisions. ESM automatically sends decision letters to the authors and the reviewers, so that everyone is fully informed of the reviews used to make the decision; in this way authors and reviewers can assess how the information has been processed and conveyed. This exposure can be seen as a form of accountability, yet it is very weak. Presmeg pointed out that while authors and reviewers may not voice their concerns when an editor is doing a poor job, the news “soon becomes known and the reputation of the journal would suffer.” She was referring to the many informal conversations that happen within the field. When scholars judge our work as editors in their private interactions, we do not hear their concerns directly and, therefore, their concerns cannot impact our future decisions. In this sense we could say that there is little accountability.

A second point regarding accountability comes in the form of the time needed to do justice to the demands of the position. Finding the time to be diligent in our editing in balance with our other responsibilities, given that this work is almost fully voluntary, was a struggle for all the editors we talked to; this, in other words, is a labor of love. The Editor-in-Chief of ESM receives and reads one article per day on average, and the Associate Editors receive and shepherd the review process for about three new articles per month. Editorial Board members are asked to review about one article per month. Having about a manuscript a day to process demands a major time commitment for any person in the role of the editor. Some editors have stepped down, some have retired, some have hired additional assistants to handle the volume of work. There are some personal benefits to serving in editor roles (e.g., knowing what researchers are working on) but these may pale in relation to the heavy demands of the work, especially considering that a similar benefit can be had from simply attending conferences. Editor roles carry significant intellectual work with little recognition.

A third point regarding autonomy versus accountability relates to the way in which editors are chosen and the limits of their service terms. While we editors like to think that we are guided only by our commitment to the field and to our ethical responsibilities as humans, the field is also impacted by how publishers make choices regarding the appointment of editors. Potential Associate Editors for ESM are identified by the Editor-in-Chief based on conversations with the current Advisory and Associate Editors, choosing someone from the Editorial Board who is known for writing good and timely reviews. Since Dörfler’s time,

Editors-in-Chief have been selected from among the Associate Editors. This practice ensures a high level of familiarity with the scope of the work, besides the firsthand experience shepherding manuscripts. For ESM, the publishers have drawn on recommendations from current and past editors but they may not necessarily follow these recommendations. This process is different from some other journals in the field, which have open application procedures for editors. Also differently from many other journals whose editors' terms are indefinite, the term for the Editor-in-Chief in ESM was set at five years after Dörfler, who served six years. As mentioned earlier, the terms for Associate Editors are undefined.

Independently of how editors are appointed and for how long, they are accountable to the field. Yet the structures to enact such accountability are nebulous for Editors-in-Chief and for Associate Editors. The publisher may want to respect an editor's decision to continue in their role, especially when they are doing a good job; but the publisher may also want to have a way to rotate editors out when their performance is not what it should be (e.g., author dissatisfaction is too high) before their term is up. Still, it is unclear what would be the criteria to hold editors accountable for their autonomous decisions, when what constitutes doing a good job is very complex.

We see also opportunities, some ideas for new scholars and ideas for diversifying the journal.

5.3 What are new scholars to take from these points?

ESM has published many (timeless) editorials about what is important in a manuscript (e.g., Dörfler, 1993; Ruthven, 1996). A chapter in the new Compendium for Early Career Researchers in Mathematics Education (Kaiser & Presmeg, Forthcoming³) speaks directly to new scholars about how to structure articles that are of publishable quality. We have included a list of questions reviewers ask when appraising the quality of the research presented in a manuscript. These are good starting points for authors for structuring and assessing their manuscripts before they are sent out to a journal. Finally, it is important for authors to know that it is always fine to approach an editor and ask about the suitability of manuscripts for the journal. It is also appropriate to inquire about the status of a manuscript when more than six months have passed. Authors can use the Editorial Management system for this purpose. It is also appropriate to ask the handling editor about specific feedback that is given, and to solicit additional explanations or extensions, as needed.

5.4 Building a more diverse journal

Given the patterns of representation of research in mathematics education, we ask whether it is the case that the widely accepted social turn and methodological explosion have happened everywhere, as we seem to assume. With every turn and advance the field makes, who is left behind? What would it take to start widening the reach of the journal?

³ <https://www.springer.com/gp/book/9783030156350>

One possibility is to work more intentionally at nurturing reviewers who bring different perspectives and voices to the table. We could start by systematically inviting scholars from countries that are underrepresented in the journal to review. We could offer more systematic assistance with their written reports, if they would like it; Springer could have in-house translators: With the increasing number of automatic translation programs, this idea does not seem far-fetched. In many occasions, invitations we have sent to these scholars from underrepresented countries to review manuscripts go unanswered, and thus, a concerted effort to find out why would be important. Being a reviewer, and writing good reviews, is a first step towards editorship, if this is something a scholar is interested in doing as a goal in their career. Additionally, current editors and scholars from over-represented countries have the responsibility to be more curious and supportive of novel areas of work. The structures that we have in place need to be both solid and fluid, to allow for expansion of the field without fear of collapsing.

6 Opening the conversation

In our conversations in co-authoring this article, we have found ourselves discussing many issues and challenges we confront daily in our roles as Associate Editors of ESM. We both have remarked on how these discussions have positively impacted our decision-making as editors. The complexities of the relationships involved in the process and our ethical responsibilities to authors, to the field, to reviewers, to research participants in the reported research, and to humanity are more than we could have predicted when we accepted our positions. We would wish upon our editor peers such helpful conversation, and to extend some of these conversations to the field as a whole.

Thus, we think that the editors of ESM, as stewards of the field, need to support open conversations about our processes. In partially opening the door, we have invited scrutiny of ESM's decision-making processes regarding manuscripts and the selection and appointment of editors and reviewers, while holding up the dedication that these scholars demonstrate in performing this work. Scrutiny of the process is different from scrutiny of manuscript decisions. The field needs to decide what level of scrutiny is ideal while upholding the importance of scholarly autonomy, which includes the necessity of allowing reviewers and editors to draw their conclusions independently from outside influence.

Discussion among editors of ESM has changed from the earlier days when it was about solidifying standards among a small group of scholars with somewhat geographical homogeneity. As the field grew, discussion has turned toward operational discussions mainly. Issues discussed by editors currently include what expertise is needed in the Editorial Board, what is the appropriate reviewing load for Editorial Board members, what is the dependability of reviewers, and what can be done to reduce the time it takes for a manuscript to receive a decision. Unlike the earlier days, the proliferation of mathematics education conferences makes it very difficult to hold face to face conversations with the full group of editors, as many of them choose to attend conferences closer to their expertise. In the earlier days, the Psychology of Mathematics Education and the International Congress on Mathematics Education were the only international conferences available and as such they were major gathering opportunities for the whole community. Today, we have

specialized to the point of fragmentation, which makes it consequently more difficult to have everyone in the same room. However, with the availability of technology, these conversations are possible without the need of a conference. We point out that attending conferences is either prohibitive or not possible to many scholars around the world. Likewise, universal access to online communication cannot be taken for granted. The conversations we have had, prompted by the information in this manuscript, could be opened up to include the whole community of researchers. Questions that could be discussed include the following:

1. What are the ethical responsibilities for reviewers and for editors? Keeping in mind that no list of responsibilities could possibly cover all eventualities, how and when should they be informed of these responsibilities? A starting point for this discussion is the Committee on Publication Ethics (COPE)'s Ethical Guidelines for Peer Reviewers.
2. How much should ethics be codified? How much should we as authors, reviewers, and editors trust the ethical judgment of people serving us?
3. What mechanisms could be used for scholars in mathematics education to express concerns about editor decisions and editorial processes?
4. How might editors receive appropriate feedback on their service in the role? Who would mediate the feedback? How would this feedback be used in decisions on retention in the role?
5. What are appropriate standards for publication of research in ESM and in our field?
6. What is a reasonable amount of time to expect the review process to take, given the time-consuming steps involved in peer review? What are our responsibilities as scholars in supporting an expeditious peer review process, given its importance to our field, our responsibilities to each other as colleagues, and the complexities of involvement of for-profit publishers?
7. What criteria are most appropriate for the selection of Editorial Board members, Associate Editors and Editors of mathematics education journals? What is an appropriate length of term for an editor?
8. What can scholars in the field do to help develop the diversity of published research? What can journal editors do?
9. What kind of discussion, among whom, and in what forms would be appropriate for these discussions? This question applies to each of the eight questions above, and the answer would likely be different for each of the questions.

We have opened the door; we have looked at trends, processes, and practices in the editorial process of ESM and provided some data that give some insight into the consequences of these processes and practices. Our analysis includes consideration of the many research reports that have not been accepted. We have been purposeful in raising questions in a way that invites our colleagues in the field to discuss the possibilities. We understand that some of the information in this article may be unsettling to some scholars in our field. Some may wish for more representative international contributions to ESM and other journals. Others who tend to think of science as objective may question the attention to the origin of submissions. With this concrete evidence from looking behind the

door showing that the concerns of some regions are more dominant than others, we wish for the field to grow in its attention to the challenges and opportunities in more diverse contexts of mathematics education. However, we also recognize that our field has advanced well over the past fifty years, which suggests that the processes in place might be serving us quite well. The field has advanced in including the concerns of more diverse regions and peoples and in adopting and developing new theories and methodologies. Our intent with this article is to provide impetus for further thoughtful discussion on how the field may develop further.

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Appendix: Directions to Reviewers

When reviewers are ready to submit their appraisal of the manuscript, they have to first indicate if they consent to transfer their information and their comments to other journals to which the manuscript could be re-routed (If this submission is transferred to another publication, do we have your consent to include your identifying information? and If this submission is transferred to another publication, do we have your consent to include your original review?). The default answer is “No.” Next they are asked to provide confidential information to the Editor in a section labeled “Comments to Editor:” that includes the questions below. Immediately following this section, there is one labeled “Comments to Author”, where reviewers include their full comments. There is also an option to upload a document.

Dear Reviewer,

In addition to your evaluation of the submission, the editor will greatly appreciate a short summary of it.

The summary can be given in the form of answers to the following questions about the scientific quality of the submitted article and the quality of presentation.

Choose your answers among: "Yes", "No", "Not relevant", or "See comments".

Summary Review Sheet:

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SCIENTIFIC QUALITY

- 1 Is this article clearly an educational study in mathematics?
- 2 Does it make an original contribution to mathematics education?
3. Are the aims of the article made clear, and are they formulated sufficiently early in the article?
4. Are the aims of the article fulfilled?

5. If applicable, are the aims, hypotheses and methodology of the research, reported in the article, clear and reasonable?
6. Does the article provide a well-founded and cogently argued analysis?
7. Do the conclusions follow from the data and/or the argument?
8. Does the article take appropriate account of previous work?
9. Is it accessible and interesting to an international readership?

QUALITY OF PRESENTATION

10. Does the title give a clear indication of the focus of the article?
11. Does the abstract summarise the article clearly and concisely?
12. Is the language of the article sufficiently fluent and clear?
13. Are the illustrations and tables necessary and acceptable?
14. Are the references adequate and are they all necessary?
15. Could the essential content be presented more concisely (particularly if the article is more than 20 pages in length)?

ADVICE TO EDITORS

16. The article is
 - (a) acceptable for publication in its present form;
 - (b) acceptable for publication with minor revisions;
 - (c) worthy of reconsideration after major revision;
 - (d) not acceptable for publication but a different article based on the same research can be resubmitted;
 - (e) not acceptable for publication.