Educational Studies in Mathematics (2023) 114:367–369
https://doi.org/10.1007/s10649-023-10270-9

The field of mathematics education research and its boundaries

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Accepted: 11 October 2023 / Published online: 21 October 2023

The world is changing around us. How do these changes impact the identity of mathematics education research as a field?

Since its beginning, the field of mathematics education research has grappled with its identity. For example, the second ICMI Study was called "Search for Identity" (Sierpinska & Kilpatrick, 1998). Twenty-five years ago, there was general agreement that the core of mathematics education was the initiation and investigation of processes and resources for mathematics teaching and learning. This core also required attention to the conditions under which mathematics teaching and learning takes place. Over several decades, the academic understanding of these conditions has become increasingly complex. Starting from individual cognitivist perspectives and moving to social and socio-cultural perspectives, perspectives on the conditions of mathematics teaching and learning have included more and more different views, contributing to a highly enriched understanding of the core. In addition to the diverse approaches to understanding the conditions of teaching and learning mathematics, there are new conditions in society, the environment, and disciplinary communities (with increasing interdisciplinarity). These resources and conditions may encompass a lot more than some of us in the field have thought of so far.

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As a consequence, the community has been successively widening the boundaries of what mathematics education research entails, partly in response to the changing world and partly because scholars in the field have become increasingly aware of the complexity that influences who learns mathematics in institutions such as schools and for what purposes. This editorial takes up this search for identity with respect to the scope of Educational Studies in Mathematics (ESM) as a research journal.

Changes are evident, for example, in the list of topic study groups at major conferences and the foci of special issues in ESM and other journals. Many of these topics were not even considered by most scholars 40 or 50 years ago, when the field was first established. Socio-political aspects have been included since the beginning of the field (Gerdes, 1981; Mellin-Olsen, 1987; Valero & Zevenbergen, 2004) but have gained more prominence in the last twenty years. In ESM, this can be seen in the recent special issue responding to the COVID-19 pandemic and secondary–tertiary transitions, and the coming special issue on racism in mathematics education (some papers have already appeared in "online first," which is a wonderful innovation allowing for publication of articles before they are assigned to an issue). Furthermore, climate change with its social, political, economical, and ecological aspects is increasingly drawing the attention of scholars in our field, likely leading to an influx of submitted publications in the near future.

As the field evolves, these shifts are also visible in the manuscripts we receive at ESM. We need to collectively find ways to avoid mere repetition of the field as it is or was and to collectively determine ways to evaluate newer forms of research and its worthiness for publication, considering current expectations in the field and developing expectations. The manuscripts submitted to ESM and the accepted papers comprise a diversity of research topics and paradigms—quantitative studies, teaching experiments, historical analyses, conceptual papers, critical studies of socio-political aspects of mathematics, and more. While we respect diverse paradigms, we cannot compromise on the high quality of accepted manuscripts. We know from our own diverse perspectives as editors and from the feedback we receive from readers that most of us feel more comfortable with some papers than others. Yet we celebrate the beauty and creativity of a field that gets us reading papers that push us beyond our comfort zones, provoking us to consider aspects we have not yet considered. These kinds of intellectual provocations help us to clarify our own reasoning about the research we undertake.

As editors, we have been discussing the boundaries of the field. Is the core of the field moving? Or is the core stationary with the boundaries expanding? Important political questions go with these discussions. Who gets to decide on the boundaries of the field? How do changing geo-political circumstances affect what comes to be seen as the core, the boundary, the periphery, or the unacceptable? And what does this imply for currently-accepted research approaches?

As editors of a major research journal, we work hard at responding to and representing the field, and we continually ask how we can support the development of the field by guiding authors to strengthen their papers (with the important help from reviewers) so that they are best situated to contribute to our collective discussions about the field and our role within it as researchers. Our guidance aims to honour the values and standards within the research approaches used by the authors, but also to help them address the diverse readers of ESM. We know that not everyone will agree with our decisions about what to publish, but by publishing articles that cover the full range of the field, we hope to reflect the ever-broadening views on the identity of the field. We know that there are diverse views on where the core of the field is located and this leads us to continually ask ourselves and the

research community, what are the core questions that mathematics education and mathematics education research should be responding to?

We hope to continue discussing these important questions as we apply them in review and editorial processes. We will be happy to continue these discussions with readers, authors, and reviewers (some of whom have raised questions with us already about the scope of the field), with their diverse perspectives about the core and the boundaries of a developing field of mathematics education research.

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