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A Century of Leadership in Mathematics and Its Teaching

Rethinking Purposes and Best Practices of Mathematics Education

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PREFACE

This semester witnessed the large-scale return to in-person instruction after two uncertain and often tumultuous school years. Amidst broad efforts to restore classrooms to pre-pandemic normalcy, contributors to the Fall 2021 issue sought instead to reevaluate and innovate on long-standing practices in mathematics education. The four articles in the main section of this issue explore strategies for equipping teachers of varying grade levels to immerse their students in rich and challenging mathematical tasks. Also featured are four “Notes from the Field” by veteran mathematics educators and researchers. These authors share their reflections and insights from decades-long careers in the field. It is our hope that, together, these articles will energize those in the field of mathematics education to continue rethinking ways to engage students and research communities to advance mathematical learning.

As many of us are able to return to the classroom, we can again look at ways to make learning mathematics interesting and meaningful for our students. Our authors in this issue bring to light a number of classroom practices that can help students from all grade levels to problem-solve and form conceptual understanding of mathematical concepts in three practice-based articles. First, in an article by Throop Robinson, we learn about a way to support early elementary students in developing quantity sense through the use of a life-size hundreds chart made out of a shower curtain. Not only does this provide students with an opportunity to be physically engaged with mathematics, but the shower curtain’s versatility also enables teacher educators to guide preservice teachers in thinking about and designing a variety of problem posing activities.

Next, Stohlmann outlines two modes of game-based learning for middle school mathematics that are geared toward engaging students and promoting student interest in STEM. Game-based learning, according to Stohlmann, is yet another way for teachers to encourage productive struggle and meaningful discourse.

Thirdly, Lee and Ban propose a way to incorporate inquiry-based learning into statistics courses at community colleges, so as to help students develop conceptual understanding and computational skills when examining problems associated with the normal distribution. Such instructional methods nurture students’ development of autonomy in learning while deepening their understanding of mathematics.

The main section concludes with a research-based article that examines strategies for supporting early-career teachers. Recognizing the unique challenges facing secondary mathematics educators within their first few years of teaching, Jakopovic, Weiland, Campitelli, Males, and Amick discuss their design and implementation of an online community of practice aimed at providing beginning mathematics teachers with mentorship and peer collaboration opportunities. The authors discuss challenges with implementation as well as directions for further research.

PREFACE (Continued)

While overcoming the many social, political, and, most recently, health and safety challenges, both current and aspiring researchers have continued to find ways to improve mathematics teaching and learning through research. The Notes from the Field section is dedicated to all those who work in the fields of mathematics and mathematics education, with advice and insight from accomplished educators and educational researchers. Beginning with Dr. Robert Q. Berry, we are reminded how stakeholders can “humanize” mathematics and mathematics education research so as to prioritize the needs of all students. Doing so is imperative, as Dr. M. Kathleen Heid highlights, as the many opportunities, developments, and changes to the field of mathematics education require us to adapt and evolve. Dr. Robert Reys reminds us that, however challenging this path through research may seem, it is always a rewarding one. Dr. Marta Civil concludes this issue by prompting us to make the research we choose to engage in more meaningful, so that studies benefit not only the field of mathematics education but also the participants' communities.

We hope that in looking to contemporary research in conjunction with career-long reflections, our readers will be inspired to adapt lessons from these past two years so as to reimagine and build on past practices—whether in striving for rigorous classroom structures or in reconceiving the purpose of mathematics education as a whole.

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Guest Editors