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A Century of Leadership in Mathematics and Its Teaching

Mathematics Pre-K through 8

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PREFACE

Pre-secondary mathematics education is beginning to receive increased attention on a national level. With the adoption of the Common Core State Standards for Mathematics in 46 states, standards for mathematics curricula starting as early as kindergarten are being implemented nationwide. In addition to content expectations outlined for each grade, the Common Core includes practice standards for all grade levels; even our youngest learners are being challenged to make sense of problems and persevere in solving them, reason abstractly and quantitatively, construct viable arguments and critique the reasoning of others, model with mathematics, use appropriate tools strategically, attend to precision, look for and make use of structure, and generalize from repeated examples[1] Many of the articles in this issue address implementation of these practice standards, as well as grade-specific content standards, in today's pre-secondary classrooms.

The articles in this issue of *Journal of Mathematics Education at Teachers College (JMETC)* represent the wide spectrum of prekindergarten through eighth grade mathematics education. These articles span early childhood, elementary, and middle school mathematics education. They cover an array of topics—mathematical modeling, problem solving and problem posing, educational technology, development of curricular materials, creativity in mathematics, special education, integrated curriculum, and teacher training and professional development.

A common thread running through this issue is the multiple means of representation, action and expression, and engagement integrated into the mathematics teaching and learning described in the articles. These are the three core tenets of Universal Design for Learning,[2] a framework typically utilized in special education and inclusion settings, these concepts are highly applicable in today's heterogeneous general education classrooms,

[1] National Governors Association Center for Best Practices, Council of Chief State School Officers. (2010). *Common core state standards for mathematics.* Washington, DC: NGA Center & CCSSO.

[2] Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal design for learning: Theory and practice.* Wakefield, MA: CAST.

PREFACE (Continued)

in which flexibility and creativity are key components of teaching mathematics to our youngest learners. This common thread provides a hopeful view of mathematics education for early childhood, elementary, and middle school. This issue of *JMETC* makes clear the profession's shift away from the days of rote learning, drills, singular algorithms, and out-of-context learning and towards mathematics curricula that incorporates relevant, real-world contexts, encourages multiple solution methods, and fosters creativity and independent thinking in the mathematical processes and outcomes of our young students.

Nicole Fletcher
Guest Editor