

OVERVIEW AND ACKNOWLEDGEMENTS

Quantitative Reasoning in Mathematics and Science Education: Papers from an International STEM Research Symposium, is the third volume in a monograph series published in support of the activities of participants in the Wyoming Institute for the Study and Development of Mathematics Education (WISDOM^e). WISDOM^e is the inspiration and vision of Dr. Larry Hatfield, Wyoming Excellence Professor of Mathematics Education at the University of Wyoming. His dream was to create a virtual center for collaborative interactions of scholars conducting research in particular domains within mathematics education. Within WISDOM^e there currently are three research strands:

- QRaMM: Quantitative Reasoning and Mathematical Modeling
- DIME: Developing Investigations of Mathematical Experience
- TTAME: Technology Tools and Applications in Mathematics Education

WISDOM^e was launched in the fall of 2010 with the intent of building inter-institutional research communities modeled off of those initiated by the NSF-supported Georgia Center for the Study of Learning and Teaching (NSF-supported) project at the University of Georgia in 1975. Hatfield's vision for WISDOM^e includes a web-based resource for collaborative research, biennial summer International Mathematics Education Research and Practice Conferences, working meetings of the Institute Research Teams held in conjunction with professional meetings such as NCTM, AERA SIG/RME, PME-NA, PME and ICME, and a monograph series producing thematic publications to present theoretical analysis and research reports aimed at influencing mathematics education research and practice. In the first 3 years WISDOM^e has supported the fall 2010 inaugural conference, cosponsored An International STEM Research Symposium: Quantitative Reasoning in Mathematics and Science Education in Summer 2012, continuing Working Groups at PME/NA 2011 and 2012, panel discussion at NCTM 2012, and the publication of monographs in Summer 2011 and Spring 2012.

In Volume 2 of the WISDOM^e monograph series we explored the role of quantitative reasoning and mathematical modeling in the learning and teaching of STEM. This monograph was key in the development of and discussions at the STEM Research Symposium held in Savannah, Georgia May 31 through June 2, 2012. The symposium was cohosted by Georgia Southern University and the University of Wyoming; bringing together a group of national and international experts in the WISDOM^e research strands and in the area of learning progressions. Volume 3 presents papers from these experts based on the working group discussions and plenary presentations at this symposium.

We would like to express our gratitude to the many persons who made the publication of this volume possible. This includes the experts who served as authors of the essays in this monograph. This monograph would not have been possible without the support and leadership of University of Wyoming Provost Myron Allen and College of Education Dean Kay Persichitte. Co-sponsorship funding support of the symposium by Georgia Southern University Vice-President of Research Charles Patterson and College of Education Dean Tom Koballa, and Larry Hatfield's Endowed Chair fund at the University of Wyoming was instrumental in bringing together the panel of experts who later wrote pieces for this monograph. Finally, funding for publication and distribution of this monograph came from the annual Endowed Chair fund provided by the generous, forward-thinking people of Wyoming to Larry Hatfield as the Wyoming Excellence Professor of Mathematics Education.

The WISDOM^e monograph series provides a context for the publication of institute-related thematic manuscripts that provide for forward thinking conversations about cutting edge issues in mathematics education. We hope to expand for our field the types of publication and dissemination opportunities for such work. We encourage the conceptualization and development of purposeful monographs not only in the WISDOM^e research strands, but in diverse, innovative research areas in mathematics education. We will be establishing a panel of Contributing Editors who will be constituted as external reviewers for subsequent monographs. An important aspect is that authors retain their copyright, allowing them to submit WISDOM^e manuscripts or subsequent versions for publication in other outlets without restraint. We distribute the printed monographs without any cost at WISDOM^e symposiums and sessions at national meetings. We offer electronic downloadable versions of the monographs through the WISDOM^e website (<http://www.uwyo.edu/wisdome/>). Overall, we intend that the monograph series will extend and strengthen the collaborative scholarship of the WISDOM^e research teams.

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