

# International Perspectives on Mathematics and Learning Disabilities: Introduction to the Special Issue

Marjorie Montague, John Woodward, and Diane Pedrotty Bryant

The Third International Mathematics and Science Study (TIMSS; Beatty, 1997), a large-scale study that compared the mathematics performance of youngsters in 40 different countries, served as a wake-up call for many of the participating countries. For these countries, including the United States, the results reinforced the long-acknowledged need to question the quality of mathematics education in their respective school systems and to take action to remedy the poor math performance of students. In this special issue, we have attempted to pull together a representative group of TIMSS participants to provide a perspective on the state of mathematics education in the developed world. We asked noted researchers in the United States, Australia, Italy, Belgium, Spain, and Japan not only to discuss their countries' mathematics curriculum and pedagogy, but also to describe how their educational system perceives low-performing students in mathematics and how their system accommodates students with mathematics learning disabilities (MLD), if indeed it does.

With that purpose in mind, we asked David Geary to write the lead article, in which he reviews his MLD subtyping research. His research provides insight into the neuropsychological and cognitive characteristics of students

with MLD, the variation among these students, and the developmental nature of MLD. In the second article, John Woodward focuses on the historical context for understanding mathematics education in the United States by discussing the sociopolitical forces that have driven mathematics education reform in the United States, mathematics research in the United States, and how theories of learning and instruction have influenced mathematics education particularly for students with learning disabilities. In the third article, Christina van Kraayenoord and John Elkins provide an overview of the mathematics reform movement in Australia, the new initiatives for improving what the Australians term *numeracy*, and the challenges facing Australia in their quest to improve mathematics learning.

The fourth article, by Cesare Cornoldi and Daniela Lucangeli, looks at mathematics education in Italy, recently developed assessment and instructional materials, and current research in MLD. In the fifth article, Belgian authors Annemie Desoete, Herbert Roeyers, and Armand De Clercq describe the special education programs in Belgium, particularly in Flanders. It should be noted that Belgium was among the highest ranked countries in the TIMSS study. Desoete et al. describe the educational pro-

grams available in Belgium for students with learning disabilities in mathematics and other instructional areas. In the sixth article, by Spanish researchers Ana Miranda Casas and Rosa García Castellar, we learn about the mathematics education reform movement in Spain, the evaluation and instructional procedures for students with MLD, and the current research in mathematics conducted by teams of researchers at several universities in Spain. Japan, also one of the top performing countries in the TIMSS study, is noted for its students' consistently high performance in mathematics. The final article in the series, by John Woodward and his Japanese colleague Yumiko Ono from Naruto University of Education, summarizes the Japanese method for teaching mathematics and describes the efforts of the educational system to accommodate students with MLD.

Despite the diverse representation of countries in this series, we believe readers will recognize that there are many more commonalities than differences in perspectives. Several themes seem to emerge, the most notable being the response to large-scale international studies (e.g., TIMSS), smaller scale but very important national assessments, and also to research. As a result, mathematics education reforms are occurring in most countries. In ad-

dition to addressing curricular concerns as part of reform, all countries seem to be making concerted efforts to improve assessment and pedagogy, particularly for students with MLD. Perhaps the most interesting commonality, however, is the similarity of research themes. There is most definitely an international research agenda that includes studying the development of mathematical knowledge in children, the neuropsychological and cognitive correlates of mathematics ability, the subtypes of learners in mathematics, and the effects of alternative assessment and instruction for students with learning difficulties. It is clear that there is more of an international community than we suspected when we first embarked on this project. We sin-

cerely thank all authors for their fine contributions to this series, and we hope that it will serve as an impetus for more international communication among researchers, teacher educators, policymakers, administrators, and, of course, teachers and their students.

#### REFERENCE

Beatty, A. (Ed.). (1997). *Learning from TIMSS: Results of the Third International Mathematics and Science Study*. Washington, DC: National Academy of Sciences.

#### ABOUT THE AUTHORS

*Marjorie Montague, PhD, is a professor at the University of Miami and specializes in learning disabilities, emotional and behavioral disorders,*

*and attention-deficit/hyperactivity disorder. Her areas of research interest include cognitive strategy instruction for students with learning disabilities and behavior and attention problems in children and adolescents. John Woodward, PhD, is a professor of education at the University of Puget Sound. His current interests include mathematics education, technology education, and professional development. Diane Pedrotty Bryant, PhD, is the associate dean for teacher education and an associate professor in the Department of Special Education at The University of Texas at Austin. She serves as the project director for the Special Education Reading Project in the Texas Center for Reading and Language Arts. Her research interests include the effectiveness of instructional interventions for literacy, mathematics, and technology for students with learning disabilities. Address: Marjorie Montague, University of Miami, PO Box 248065, Coral Gables, FL 33133; mmontague@aol.com*