

# Preface

Why do Chinese students outperform their Western peers in mathematics?

This book explores this challenging question and is based on the international comparative studies relating to students' achievements in mathematics, which have found that students from Mainland China, Hong Kong, and Taiwan consistently outperform their Western counterparts. A most recent example is provided by Program for International Student Assessment (PISA) 2012. Results of this study, which includes about 510,000 students aged 15 from 65 countries and economies, who took part in mathematics literacy assessments, showed that students from China's Shanghai achieved the highest score, followed by students of Singapore, Hong Kong, and Taipei scoring higher than every other country including students from Australia. Over the years, there has been considerable interest within the field of mathematics education in identifying the underlying factors that might account for this mathematics achievement gap between the Chinese students and their Western counterparts. This book reports a study, which compares mathematics education in primary schools in Australia and in China investigating factors that accounting for Chinese students' high achievement in mathematics.

This manuscript is composed of ten chapters. Chapter 1 gives the reader a background to the study, a description of the achievement gap, the purpose of the research, key terms used, and other interrelated research questions. Chapter 2 provides an extensive review of literature on the topic of comparative studies of mathematics achievement and offers a robust research framework for the study. The expose of research design as well as methodology is presented in Chap. 3. Chapters 4 and 5 present an overview of the each country's educational policies of mathematics education through an analysis of major mathematics curricula and assessment documents of both countries. Similarities and differences of policies of mathematics curriculum and assessment between China and Australia are painstakingly described in Chap. 6. Three case studies on how these policies of mathematics curriculum and assessment have been implemented in Australian and Chinese primary schools are reported in Chaps. 7–9. Mathematics education of two primary schools in Australia is compared in Chap. 8, and a comprehensive

comparison of mathematics education among three cases is summarized in the last chapter. Chapter 10 discusses the main findings of the study, providing a theoretical account to explain the findings and how they are related to the mathematics achievement gap. Also discussed are implications of these findings to curriculum and assessment reform both in Australia and in China.

This book is a very useful reference book to researchers and to higher-degree research students who enrolled in international comparative studies and mathematics education. It can be quite an instructive book for school teachers, university lecturers, and instructors in mathematics, especially to teach students whose first language may not be English or with different cultural backgrounds. Even parents, showing an interest in reading this book, can improve their understanding of those factors impinging on their children's learning in general and on their children's achievement in mathematics in particular.

Chinese Students' Higher Achievement in Mathematics  
Comparison of Mathematics Education of Australian  
and Chinese Primary Schools

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