

Introduction

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The issue of equity remains one of the most difficult and persistent problematics in the theory and practice of mathematics education. In the broadest sense, *equity* encompasses matters involving regimes of inclusions and exclusions that both enable and constrain the lived conditions—by gender, cultural identity, and diversity—of individuals in complex societies. Undoubtedly, this is why the presumption of *access* is foregrounded by Bishop and Forgasz (2007) in their synthesis of research on equity in mathematics education. They claimed that “without *access* to mathematics education there can be no equity” (p. 1146). This view offers a powerful counterdiscourse to *inequity* which, as a concept, is represented by marked (negative) differences in outcomes among groups within a given context or setting. Inequities are manifest in educational situations that involve achievement, enrolment, and attitudes. While differential outcomes implicitly convey inequity of some kind, they are distinguished from *diversity*, a concept that relates to the complex of interacting ways in which groups of individuals are identified and categorized. In this book, diversity encompasses: gender; race, ethnicity and culture; nationality and language background; socioeconomic status; exceptionalality; and physical and learning disabilities.

In this volume, we have assembled two categories of research articles that address various aspects of equity. Direct reproductions of earlier published ZDM articles comprise the first category of papers. To bring them up-to-date, we asked the authors of these articles to write a short Preface. In light of Leone Burton’s passing, we invited Diana Erchick to write the Preface to the re-printed Burton article. New chapters encompass the second category of papers. We invited authors who could

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assist in addressing gaps in the field that we believed had not been sufficiently covered by the first category of papers to prepare new chapters. We carefully selected authors because we felt they might also bring with them “new” methodological and theoretical perspectives that would benefit and advance the field. Each new chapter is also accompanied by two commentaries. Commentators were selected who were well-known, experienced and knowledgeable researchers in the field, or less experienced but promising, emerging researchers. Each commentator was asked to comment on the current state of the field based on the views raised in the chapters assigned to them. We also encouraged them to develop views that would provoke forward, productive, and different ways of thinking, including ways in which the work could potentially influence changes in policy and institutional practices.

Overall, while the book aims to both broaden and expand the complicated conversations concerning equity in mathematics education, it should be clear that the primary intent, which we share with equity scholars within and outside of mathematics education (e.g., Luke et al. 2010; Nasir and Cobb 2007), is to develop ways in which up-to-date research knowledge in the field can assist in eliminating the various *equity gaps* that are so pervasive in the mathematics education literature.

The remaining nineteen major chapters in this volume have been structured around four parts. Each major chapter is accompanied by either an updated Preface or two follow-up chapter commentaries. We caution readers that while part labels helped us in organizing the chapters, they are nonetheless subjective and arguable as there are considerable overlaps across dimensions of equity. The six chapters comprising Part I deal with issues associated with equity and gender. Part II consists of six chapters in which issues pertinent to equity and culture, ethnicity, race, and indigeneity are discussed. The four chapters included in Part III tackle issues of equity and matters that pertain to curriculum. The final three chapters found in Part IV address equity and matters of a biological nature. Each part commences with brief introductory comments from the editors of the volume.

Across the nineteen chapters, a strong and mutually determining relationship between theory and empirical evidence can be discerned. We share Lukas and Beresford’s (2010) view concerning the significance of emerging theories on equity in mathematics education that can inform the development of equitable practices and, more generally, policy:

(B)y itself, empirical research offers little to social analysts and policymakers; theory is essential for drawing proper inferences from the research. Yet the wide set of plausible theories, and strategies of analysis that are not designed to eliminate nonviable theories, can ultimately render social science evidence of little value to policy. (p. 26)

We are just as concerned about efforts that seek to translate evidence to norms, but we hope the chapters in the volume generate further productive discussions in terms of how equity gaps can be eliminated so that all learners, in whatever category of diversity they are located, are able to achieve success in their encounters with and engagement in the learning of mathematics.

Finally, consistent with the structure of the two earlier volumes in the *Advances in Mathematics Education* series, one important feature of this book is the international dimension of authorship and mathematics learning contexts. This has enabled

us to pursue matters involving equity in mathematics education from several different, and interesting, lenses, angles, and perspectives. We were impressed with the scholarship of the researchers whose locations and contexts were from across the globe. They have provided thought-provoking views and empirical evidence that should further enrich both the theory and praxis of equity in mathematics education well into the 21st century.

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References

- Bishop, A. & Forgasz, H. (2007). Issues in access and equity in mathematics education. In F. Lester (Ed.), *Second handbook of research on mathematics teaching and learning* (Vol. 2, pp. 1145–1167). Reston: National Council of Teachers of Mathematics.
- Lukas, S. & Beresford, L. (2010). Naming and classifying: Theory, evidence, and equity in education. In A. Luke, J. Green, & G. Kelly (Eds.), *Review of Research in Education, Volume 34 (What counts as evidence in educational settings? Rethinking equity, diversity, and reform in the 21st century)* (pp. 25–84). Washington: American Educational Research Association.
- Luke, A., Green, J., & Kelly, G. (2010). What counts as evidence and equity? In A. Luke, J. Green, & G. Kelly (Eds.), *Review of Research in Education: Volume 34 (What counts as evidence in educational settings? Rethinking equity, diversity, and reform in the 21st century)* (pp. vii–xvii). Washington: American Educational Research Association.
- Nasir, N. & Cobb, P. (2007). *Improving access to mathematics: Diversity and equity in the classroom*. Columbia: Teachers College Press.