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BUCK HOOPER

Debates in Mathematics Education Routledge

Now is a time of great interest in mathematics education. Student performance, curriculum, and teacher education are the subjects of much scrutiny and debate. Studies on the mathematical knowledge of prospective and practicing U. S. teachers suggest ways to improve their mathematical educations. It is often assumed that because the topics covered in K-12 mathematics

are so basic, they should be easy to teach. However, research in mathematics education has shown that to teach well, substantial mathematical understanding is necessary--even to teach whole-number arithmetic. Prospective teachers need a solid understanding of mathematics so that they can teach it as a coherent, reasoned activity and communicate its elegance and power. This volume gathers and reports current thinking on curriculum and policy issues affecting the mathematical education of teachers. It considers two general themes: (1) the intellectual substance in school mathematics; and (2) the special nature of the mathematical knowledge needed for teaching. The

underlying study was funded by a grant from the U.S. Department of Education. The mathematical knowledge needed for teaching is quite different from that required by students pursuing other mathematics-related professions. Material here is geared toward stimulating efforts on individual campuses to improve programs for prospective teachers. This report contains general recommendations for all grades and extensive discussions of the specific mathematical knowledge required for teaching elementary, middle, and high-school grades, respectively. It is also designed to marshal efforts in the mathematical sciences community to back important national initiatives to improve mathematics education and to expand professional development opportunities. The book will be an important resource for mathematics faculty and other parties involved in the mathematical education of teachers.

Applying Critical Mathematics Education Springer

This book documents and expands on the diverse social and political dimensions of mathematics education issues, concerns, perspectives, contexts, and approaches presented in Topic Study Group 34 of the 13th International Congress on Mathematical Education (ICME-13). The book also argues for and promotes the mainstreaming of the sociopolitical dimensions of mathematics education through an ongoing critique and inquiry into content, policies, practices and theories. Accordingly, the main theme throughout the book is captured and illuminated by bringing voices from the margin to the mainstream. In this respect it is both aspirational and a reality, as evidenced by the increasing references to the sociopolitical dimensions in other areas of mathematics education—for example, in several of the plenary

presentations at the ICME-13. The authors have reflected on their ideas with a view to orienting and enhancing research in the sociopolitical dimensions of mathematics education that is grounded in current education systems within their specific sociocultural contexts.

Values and Valuing in Mathematics Education IAP

Critical Issues in Mathematics Education presents the significant contributions of Professor Alan Bishop within the mathematics education research community. Six critical issues, each of which have had paramount importance in the development of mathematics education research, are reviewed and include a discussion of current developments in each area. Teacher decision making, spatial/visualizing geometry, teachers and research, cultural/social aspects of mathematics education, sociopolitical issues, and values serve as the basic issues discussed in this examination of mathematics education over the last fifty years during which Professor Bishop has been active in the field. A comprehensive discussion of each of these topics is realized by offering the reader a classic research contribution of Professor Bishop's together with commentary and invited chapters from leading experts in the field of mathematics education. Critical Issues in Mathematics Education will make an invaluable contribution to the ongoing reflection of mathematic education researchers worldwide, but also to policy makers and teacher educators who wish to understand some of the key issues with which mathematics education has been and still is concerned, and the context within which Professor Bishop's key contributions to these research issues were made.

Contemporary Research and Perspectives on Early

Childhood Mathematics Education Springer Science & Business Media

Living Culturally Responsive Mathematics Education with/in Indigenous Communities provides a critical examination of the nature, possibilities and challenges of culturally responsive mathematics education and how it is lived with/in Indigenous communities across international contexts connecting land, community, mathematics, and culture.

Learning, Teaching and Thinking American Mathematical Soc.

The word "critical" in the title of this collection has three meanings, all of which are relevant. One meaning, as applied to a situation or problem, is "at a point of crisis". A second meaning is "expressing adverse or disapproving comments or judgments". A third is related to the verb "to critique", meaning "to analyze the merits and faults of". The authors contributing to this book pose challenging questions, from multiple perspectives, about the roles of mathematics in society and the implications for education. Traditional reasons for teaching mathematics include: preparing a new generation of mathematics researchers and a cadre of technically competent users of mathematics; training students to think logically; and because mathematics is as much part of cultural heritage as literature or music. These reasons remain valid, though open to critique, but a deeper analysis is required that recognizes the roles of mathematics in framing many aspects of contemporary society, that will connect mathematics education to the lived experiences of students, their communities, and society in general, and that acknowledges the global ethical responsibilities of mathematicians and mathematics educators. The book is organized in four sections

(1) Mathematics education: For what and why? (2) Globalization and cultural diversity, (3) Mathematics, education, and society and (4) Social justice in, and through, mathematics education The chapters address fundamental issues such as the relevance of school mathematics in people's lives; creating a sense of agency for the field of mathematics education, and redefining the relationship between mathematics as discipline, mathematics as school subject and mathematics as part of people's lives.

Living Culturally Responsive Mathematics Education with/in Indigenous Communities Routledge

Mathematics Teacher Noticing is the first book to examine research on the particular type of noticing done by teachers--- how teachers pay attention to and make sense of what happens in the complexity of instructional situations. In the midst of all that is happening in a classroom, where do mathematics teachers look, what do they see, and what sense do they make of it? This groundbreaking collection begins with an overview of the construct of noticing and the various historical, theoretical, and methodological perspectives on teacher noticing. It then focuses on studies of mathematics teacher noticing in the context of teaching and learning and concludes by suggesting links to other constructs integral to teaching. By collecting the work of leaders in the field in one volume, the editors present the current state of research and provide ideas for how future work could further the field.

Intellectual and attitudinal challenges Springer

The book presents the Invited Lectures given at 13th International Congress on Mathematical Education (ICME-13). ICME-13 took place from 24th- 31st July 2016 at the University of

Hamburg in Hamburg (Germany). The congress was hosted by the Society of Didactics of Mathematics (Gesellschaft für Didaktik der Mathematik - GDM) and took place under the auspices of the International Commission on Mathematical Instruction (ICMI). ICME-13 – the biggest ICME so far – brought together about 3500 mathematics educators from 105 countries, additionally 250 teachers from German speaking countries met for specific activities. The scholars came together to share their work on the improvement of mathematics education at all educational levels.. The papers present the work of prominent mathematics educators from all over the globe and give insight into the current discussion in mathematics education. The Invited Lectures cover a wide spectrum of topics, themes and issues and aim to give direction to future research towards educational improvement in the teaching and learning of mathematics education. This book is of particular interest to researchers, teachers and curriculum developers in mathematics education.

The Mathematical Education of Teachers II Cambridge University Press

In this book, 23 contributors offer new insights on key issues in mathematics education in early childhood.

Improving Mathematics Education Springer Science & Business Media

Empower students to be the change—join the teaching mathematics for social justice movement! We live in an era in which students have —through various media and their lived experiences— a more visceral experience of social, economic, and environmental injustices. However, when people think of social justice, mathematics is rarely the first thing that comes to

mind. Through model lessons developed by over 30 diverse contributors, this book brings seemingly abstract high school mathematics content to life by connecting it to the issues students see and want to change in the world. Along with expert guidance from the lead authors, the lessons in this book explain how to teach mathematics for self- and community-empowerment. It walks teachers step-by-step through the process of using mathematics—across all high school content domains—as a tool to explore, understand, and respond to issues of social injustice including: environmental injustice; wealth inequality; food insecurity; and gender, LGBTQ, and racial discrimination. This book features: Content cross-referenced by mathematical concept and social issues Downloadable instructional materials for student use User-friendly and logical interior design for daily use Guidance for designing and implementing social justice lessons driven by your own students' unique passions and challenges Timelier than ever, teaching mathematics through the lens of social justice will connect content to students' daily lives, fortify their mathematical understanding, and expose them to issues that will make them responsive citizens and leaders in the future.

Resources for Decision Making Springer

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research, cultural/social aspects of mathematics education, sociopolitical issues, and values serve as the basic issues discussed in this examination of mathematics education over the last fifty years during which Professor Bishop has been active in the field. A comprehensive discussion of each of these topics is realized by offering the reader a classic research contribution of Professor Bishop's together with commentary and invited chapters from leading experts in the field of mathematics education. *Critical Issues in Mathematics Education* will make an invaluable contribution to the ongoing reflection of mathematic education researchers worldwide, but also to policy makers and teacher educators who wish to understand some of the key issues with which mathematics education has been and still is concerned, and the context within which Professor Bishop's key contributions to these research issues were made.

Critical Mathematics Education Springer Science & Business Media

Critical Issues in Mathematics Education IAP

Major Contributions of Alan Bishop Information Age Pub Incorporated

This book comprises the Proceedings of the 12th International Congress on Mathematical Education (ICME-12), which was held at COEX in Seoul, Korea, from July 8th to 15th, 2012. ICME-12 brought together 3500 experts from 92 countries, working to understand all of the intellectual and attitudinal challenges in the subject of mathematics education as a multidisciplinary research and practice. This work aims to serve as a platform for deeper, more sensitive and more collaborative involvement of all major contributors towards educational improvement and in research

on the nature of teaching and learning in mathematics education. It introduces the major activities of ICME-12 which have successfully contributed to the sustainable development of mathematics education across the world. The program provides food for thought and inspiration for practice for everyone with an interest in mathematics education and makes an essential reference for teacher educators, curriculum developers and researchers in mathematics education. The work includes the texts of the four plenary lectures and three plenary panels and reports of three survey groups, five National presentations, the abstracts of fifty one Regular lectures, reports of thirty seven Topic Study Groups and seventeen Discussion Groups.

Invited Lectures from the 13th International Congress on Mathematical Education IAP

This volume presents a serious discussion of educational issues, with representations of opposing ideas.

A Rogue Economist Explores the Hidden Side of Everything Springer

Following in the steps of the socio-political turn of the discipline, *Equity in Mathematics Education: Addressing a Changing World* emerged as a response of the editor and the chapter authors to the enormous changes that have in the last years occurred at a global level (for example, the ongoing war in Syria, the political [in]actions of powerful nations to fight climate change, the rise of far-right parties in many countries around the world, and so on). In recent years, massive migration waves from the Middle East have caused significant demographic changes to many European countries, Canada and the US, that are reflected in schools and classrooms. These observations have led this book's contributors

to reconsider the concept and/or practice of equity, and its related concept, social justice, and the role of mathematics education research in addressing and promoting a fairer world. Contrary to other, perhaps highly specialized books concerned with similar topics, this book aims to provide a smooth, yet deep introduction to those who are new to this research area. Equity in Mathematics Education: Addressing a Changing World contributes to the understanding of equity and its complex relations to mathematics education. It is anticipated that it will support individuals in teaching, educational research, policy making and planning, and teacher education, in becoming more aware of the interplay between school mathematics and socio-political issues that, ultimately, impacts the lives of learners and their communities, teachers as practitioners and as citizens, the wider society, and the world as a whole. Even though each chapter can be read independently of others, an engagement with all chapters in this volume will provide readers with a solid holistic understanding of the research territory of equity and mathematics education.

Major Contributions of Alan Bishop National Academies Press
This book brings together mathematics education research that makes a difference in both theory and practice - research that anticipates problems and needed knowledge before they become impediments to progress.

The Mathematical Education of Teachers Springer

This book provides a collection of chapters from prominent mathematics educators in which they each discuss vital issues in mathematics education and what they see as viable directions research in mathematics education could take to address these

issues. All of these issues are related to learning and teaching mathematics. The book consists of nine chapters, seven from each of seven scholars who participated in an invited lecture series (Scholars in Mathematics Education) at Brigham Young University, and two chapters from two other scholars who are writing reaction papers that look across the first seven chapters. The recommendations take the form of broad, overarching principles and ideas that cut across the field. In this sense, this book differs from classical "research agenda projects," which seek to outline specific research questions that the field should address around a central topic.

Special Issues in Early Childhood Mathematics Education Research Mathematics Teaching and Learn

Critical Issues in Mathematics Education presents the significant contributions of Professor Alan Bishop within the mathematics education research community. Six critical issues, each of which have had paramount importance in the development of mathematics education research, are reviewed and include a discussion of current developments in each area. Teacher decision making, spatial/visualizing geometry, teachers and research, cultural/social aspects of mathematics education, sociopolitical issues, and values serve as the basic issues discussed in this examination of mathematics education over the last fifty years during which Professor Bishop has been active in the field. A comprehensive discussion of each of these topics is realized by offering the reader a classic research contribution of Professor Bishop's together with commentary and invited chapters from leading experts in the field of mathematics education. Critical Issues in Mathematics Education will make an

invaluable contribution to the ongoing reflection of mathematic education researchers worldwide, but also to policy makers and teacher educators who wish to understand some of the key issues with which mathematics education has been and still is concerned, and the context within which Professor Bishop's key contributions to these research issues were made.

High School Mathematics Lessons to Explore, Understand, and Respond to Social Injustice Critical Issues in Mathematics Education

A collection of more than thirty articles shows teachers how to weave social justice principles throughout the math curriculum, and how to integrate social justice math into other curricular areas as well.

Mathematics Education Routledge

This volume showcases new insights, teaching ideas and new and unique ways of applying critical mathematics education, in areas as diverse as climate change, obesity, decolonisation and ethnomathematics.

Research and Practice IAP

This new and updated second edition of *Debates in Mathematics Education* explores the major issues that mathematics teachers encounter in their daily lives. By engaging with established and

contemporary debates, this volume promotes and supports critical reflection and aims to stimulate both novice and experienced teachers to reach informed judgements and argue their point of view with deeper theoretical knowledge and understanding. Divided into five accessible sections, this book investigates and offers fresh insight into topics of central importance in mathematics education, with this second edition including new discussions and chapters on: Classic and contemporary issues of pedagogy, politics, philosophy and sociology of mathematics education International comparisons of achievement Digital technologies for teaching Mastery in mathematics Pop culture and mathematics Whether mathematics can be harmful Designed to stimulate discussion and support you in your own research, writing and practice through suggested questions and activities throughout, *Debates in Mathematics Education* will be a valuable resource for any student or practising teacher, and those engaged in initial teacher education, continuing professional development or Master's level study. This book also has much to offer to those leading mathematics departments in schools and initial teacher education programmes, and to beginning doctoral students looking for a survey of the field of mathematics education research.