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KEY=FIRST - COLLINS WOOD

MIDDLE GRADES RESEARCH JOURNAL

VOLUME 9 #3

IAP Middle Grades Research Journal (MGRJ) is a refereed, peer reviewed journal that publishes original studies providing both empirical and theoretical frameworks that focus on middle grades education. A variety of articles are published quarterly in March, June, September, and December of each volume year.

THE EDUCATION INVASION

HOW COMMON CORE FIGHTS PARENTS FOR CONTROL OF AMERICAN KIDS

Encounter Books Most Americans had no idea what Common Core was in 2013, according to polls. But it had been creeping into schools nationwide over the previous three years, and children were feeling its effects. They cried over math homework so mystifying their parents could not help them, even in elementary school. They read motley assortments of “informational text” instead of classic literature. They dreaded the high-stakes tests, in unfamiliar formats, that were increasingly controlling their classrooms. How did this latest and most sweeping “reform” of American education come in mostly under the radar? Joy Pullmann started tugging on a thread of reports from worried parents and frustrated teachers, and it led to a big tangle of history and politics, intrigue and arrogance. She unwound it to discover how a cabal of private foundation honchos and unelected public officials cooked up a set of rules for what American children must learn in core K-12 classes, and how the Obama administration pressured states to adopt them. Thus a federalized education scheme took root, despite legal prohibitions against federal involvement in curriculum. Common Core and its testing regime were touted as “an absolute game-changer in public education,” yet the evidence so far suggests that kids are actually learning less under it. Why, then, was such a costly and disruptive agenda imposed on the nation’s schools? Who benefits? And how can citizens regain local self-governance in education, so their children’s minds will be fed a more nourishing intellectual diet and be protected from the experiments of emboldened bureaucrats? The Education Invasion offers answers and remedies.

BEYOND THE COMMON CORE [LEADER'S GUIDE]

A HANDBOOK FOR MATHEMAIC IN A PLC AT WORKTM, LEADER'S GUIDE

Solution Tree Press Focus your curriculum to heighten student achievement. Learn 10 high-leverage team actions for mathematics instruction and assessment. Discover the actions your team should take before a unit of instruction begins, as well as the actions and formative assessments that should occur during instruction. Examine how to most effectively reflect on assessment results, and prepare for the next unit of instruction.

WRITING STRATEGIES FOR MATHEMATICS

Teacher Created Materials Help students write about mathematics content! This 2nd edition resource was created to support College and Career Readiness Standards, and provides in-depth research about content-area literacy instruction, including key strategies to help students write about and comprehend mathematics content. Each strategy includes classroom examples by grade ranges (1-2, 3-5, 6-8 and 9-12) and necessary support materials, such as graphic organizers, templates, or digital resources to help teachers implement quickly and easily. Specific suggestions for differentiating instruction are also provided to help English language learners, gifted students, and students reading below grade level.

UNCOVERING STUDENT THINKING ABOUT MATHEMATICS IN THE COMMON CORE, GRADES K-2

20 FORMATIVE ASSESSMENT PROBES

Corwin Press Get to the core of your students’ understanding of math! Quickly and reliably identify your primary students’ math knowledge with these convenient and easy-to-implement diagnostic tools! Tobey and Fagan provide 25 new assessments specifically for Grades K-2 and directly aligned with the Common Core. Organized by strand, the probes will enable you to: Quickly and objectively evaluate each child’s prior knowledge of basic math and numeracy Systematically address common mistakes and obstacles before they become long-term problems Make sound instructional choices to improve all students’ math skills

COMMON CORE MATHEMATICS STANDARDS AND IMPLEMENTING DIGITAL TECHNOLOGIES

IGI Global Standards in the American education system are traditionally handled on a state-by-state basis, which can differ significantly from one region of the country to the next. Recently, initiatives proposed at the federal level have attempted to bridge this gap. Common Core Mathematics Standards and Implementing Digital Technologies provides a critical discussion of educational standards in mathematics and how communication technologies can support the implementation of common practices across state lines. Leaders in the fields of mathematics education and educational technology will find an examination of the Common Core State Standards in Mathematics through concrete examples, current research, and best practices for teaching all students regardless of grade level or regional location. This book is part of the Advances in Educational Technologies and Instructional Design series collection.

THE MATH TEACHER'S TOOLBOX

HUNDREDS OF PRACTICAL IDEAS TO SUPPORT YOUR STUDENTS

John Wiley & Sons Math teachers will find the classroom-tested lessons and strategies in this book to be accessible and easily implemented in the classroom. The Teacher's Toolbox series is an innovative, research-based resource providing teachers with instructional strategies for students of all levels and abilities. Each book in the collection focuses on a specific content area. Clear, concise guidance enables teachers to quickly integrate low-prep, high-value lessons and strategies in their middle school and high school classrooms. Every strategy follows a practical, how-to format established by the series editors. The Math Teacher's Toolbox contains hundreds of student-friendly classroom lessons and teaching strategies. Clear and concise chapters, fully aligned to Common Core math standards, cover the underlying research, required technology, practical classroom use, and modification of each high-value lesson and strategy. This book employs a hands-on approach to help educators quickly learn and apply proven methods and techniques in their mathematics courses. Topics range from the planning of units, lessons, tests, and homework to conducting formative assessments, differentiating instruction, motivating students, dealing with "math anxiety," and culturally responsive teaching. Easy-to-read content shows how and why math should be taught as a language and how to make connections across mathematical units. Designed to reduce instructor preparation time and increase student engagement and comprehension, this book: Explains the usefulness, application, and potential drawbacks of each instructional strategy Provides fresh activities for all classrooms Helps math teachers work with ELLs, advanced students, and students with learning differences Offers real-world guidance for working with parents, guardians, and co-teachers The Math Teacher's Toolbox: Hundreds of Practical ideas to Support Your Students is an invaluable source of real-world lessons, strategies, and techniques for general education teachers and math specialists, as well as resource specialists/special education teachers, elementary and secondary educators, and teacher educators.

PRIMARY MATHEMATICS PEDAGOGY AT THE INTERSECTION OF EDUCATION REFORM, POLICY, AND CULTURE

COMPARATIVE INSIGHTS FROM GHANA, SINGAPORE, AND THE US

Routledge This volume provides an in-depth, comparative examination of how primary mathematics education is influenced by national education reform, policy, local resources, and culture in three different countries. By drawing on first-hand observations and interviews, as well as analysis of policy documents and learning resources, the book considers the viability of transferring best practices in primary mathematics education across global contexts. Three diverse countries - Ghana, the US, and Singapore - are explored. Similarities and differences are highlighted, and the influence of national and regional initiatives related to pedagogical strategies, teacher education, and cultural expectations are considered, to offer an insightful examination of how best practices might be shared across borders. This book will benefit researchers, academics, and postgraduate scholars with an interest in international and comparative education, mathematics, and educational policy. Those with a specialization in primary mathematics education, including pedagogy and teacher preparation, will also benefit from this book.

FORGING CONNECTIONS IN EARLY MATHEMATICS TEACHING AND LEARNING

Springer This edited book promotes thinking, dialogue, research and theorisation on multiple ways of making connections in mathematics teaching and learning in early childhood education. The book addresses some key challenges in research, policy and practice in early childhood mathematics education. It examines diverse ways for learning experiences to connect young children to mathematics, and the importance of forging connections between mathematics and young children's lives as key elements in their engagement with mathematics. Each chapter provides research or theoretical provocations and pedagogical implications for connecting children's lived experiences and ways of learning in mathematics teaching. The chapters are drawn from a range of international authors who raise important ideas within the overall context of current research and consider the theoretical and practical implications of their research. As such, the book advances current thinking on mathematics teaching and learning for children in the early years from birth to eight years with an emphasis on children aged birth to 5 years. It considers the purpose and value in connecting mathematics teaching and learning to children's lives, and provides provocations for both educators and researchers on the many under-researched and under-represented aspects of early years mathematics teaching and learning.

INTERNATIONAL HANDBOOK OF RESEARCH IN STATISTICS EDUCATION

Springer This handbook connects the practice of statistics to the teaching and learning of the subject with

contributions from experts in several disciplines. Chapters present current challenges and methods of statistics education in the changing world for statistics and mathematics educators. Issues addressed include current and future challenges in professional development of teachers, use of technology tools, design of learning environments and appropriate student assessments. This handbook presents challenging and inspiring international research perspectives on the history and nature, current issues, and future directions of statistics education and statistics education research.

TEACHING TO THE MATH COMMON CORE STATE STANDARDS

FOCUS ON GRADE 5 TO GRADE 8 AND ALGEBRA 1

Springer This is a methods book for preservice middle level majors and beginning middle school teachers. It takes a very practical approach to learning to teach middle school mathematics in an emerging Age of the Common Core State Standards. The Common Core State Standards in Mathematics (CCSSM) is not meant to be “the” official mathematics curriculum; it was purposefully developed primarily to provide clear learning expectations of mathematics content that are appropriate at every grade level and to help prepare all students to be ready for college and the workplace. A quick glance at the Table of Contents in this book indicates a serious engagement with the recommended mathematics underlying the Grade 5 through Grade 8 and (traditional pathway) Algebra I portions of the CCSSM first, with issues in content-practice assessment, learning, teaching, and classroom management pursued next and in that order. In this book we explore what it means to teach to the CCSSM within an alignment mindset involving content-practice learning, teaching, and assessment. The Common Core state content standards, which pertain to mathematical knowledge, skills, and applications, have been carefully crafted so that they are teachable, learnable, coherent, fewer, clearer, and higher. The practice standards, which refer to institutionally valued mathematical actions, processes, and habits, have been conceptualized in ways that will hopefully encourage all middle school students to engage with the content standards more deeply than merely acquiring mathematical knowledge by rote and imitation. Thus, in the CCSSM, proficiency in content alone is not sufficient, and so does practice without content, which is limited. Content and practice are both equally important and, thus, must come together in teaching, learning, and assessment in order to support authentic mathematical understanding. This blended multisourced text is a “getting smart” book. It prepares preservice middle level majors and beginning middle school teachers to work within the realities of accountable pedagogy and to develop a proactive disposition that is capable of supporting all middle school students in order for them to experience growth in mathematical understanding that is necessary for high school and beyond, including future careers.

NUMERACY AND LEARNING DIFFICULTIES 2ND ED.

ACER Press The 2nd edition of Peter Westwood's best-selling Numeracy and Learning Difficulties addresses recent initiatives around the teaching of numeracy, the increased focus on numeracy standards, and international research around numeracy teaching, learning and pedagogy. Drawing on research from the fields of developmental and cognitive psychology, Peter Westwood presents a case for high-quality 'first teaching' to prevent students failing in the initial acquisition of numeracy skills. Numeracy and Learning Difficulties provides guidance on how to develop flexible teaching methods and strategies to improve mathematical skills of students. It discusses common areas of learning difficulty in mathematics and looks at ways teachers can determine gaps in students' knowledge, as well as how to develop curricula and problem-solving strategies to address these gaps. In the Learning Difficulties series, Peter Westwood evaluates, summarises and presents research, strategies and best-practice methodologies for working with students that have learning difficulties in particular subject areas. Rigorous yet accessible, the titles in this series provide teachers with the knowledge, data and direction they need to develop their skills and meet student needs.

IMPROVING TEACHER KNOWLEDGE IN K-12 SCHOOLING

PERSPECTIVES ON STEM LEARNING

Springer This volume examines how several key components of the mathematics education system in the United States fail to provide teachers with adequate and effective tools to teach mathematics in K-12 classrooms. These components consist of teachers' own learning experiences as students in K-12 classrooms, their undergraduate or graduate trainings in mathematics, and their in-service professional development trainings. Newton argues that unless we improve these system components as a whole and recognize the importance of teaching future mathematics teachers explicitly and rigorously the topics they are expected to teach, teachers will continue to recycle a body of incoherent and incomprehensible mathematical knowledge to their students, because these are the only types of mathematical knowledge they have at their disposal, both in terms of what they themselves have learned as K-12 students and in terms of the mathematical resources available to them, including the textbooks they rely on to teach as mathematics teachers.

MATHEMATICS AND MULTI-ETHNIC STUDENTS

EXEMPLARY PRACTICES

Taylor & Francis Mathematics and Multi-Ethnic Students provides detailed profiles of teachers across the nation who have implemented effective mathematics instruction for diverse student populations. In this revised edition, Yvelyne Germain-McCarthy expands upon the popular case studies and adds two new chapters to highlight the latest

educational research and practices that are reflected in the case studies. A third new chapter introduces the concept of the Life-Long Learning Laboratory where courageous questions on issues such as the impact of race on student learning are discussed. Featuring useful framing tools including the Discussion with Colleagues and Commentary sections, Mathematics and Multi-Ethnic Students translates concrete instances of access and equity into generalized problem-solving methods for promoting ethnic diversity across grade levels. An important resource for pre-service and in-service educators, researchers, administrators, and policy makers, this volume highlights the work of teachers who have gone beyond mere awareness of reform recommendations in mathematics instruction. By uniting the goals of multicultural education with those of the mathematics curriculum, educators will learn to conceptualize and implement best practices for effective, equitable teaching and learning of mathematics for their students.

THE ROUTLEDGE INTERNATIONAL HANDBOOK OF DYSCALCULIA AND MATHEMATICAL LEARNING DIFFICULTIES

Routledge Mathematics plays an important part in every person's life, so why isn't everyone good at it? The Routledge International Handbook of Dyscalculia and Mathematical Learning Difficulties brings together commissioned pieces by a range of hand-picked influential, international authors from a variety of disciplines, all of whom share a high public profile. More than fifty experts write about mathematics learning difficulties and disabilities from a range of perspectives and answer questions such as: What are mathematics learning difficulties and disabilities? What are the key skills and concepts for learning mathematics? How will IT help, now and in the future? What is the role of language and vocabulary? How should we teach mathematics? By posing notoriously difficult questions such as these and studying the answers The Routledge International Handbook of Dyscalculia and Mathematical Learning Difficulties is the authoritative volume and is essential reading for academics in the field of mathematics. It is an incredibly important contribution to the study of dyscalculia and mathematical difficulties in children and young adults.

COMMON CORE MATHEMATICS IN A PLC AT WORK, GRADES 3-5

Solution Tree Press This teacher guide illustrates how to sustain successful implementation of the Common Core State Standards for mathematics, grades 3-5. Discover what students should learn and how they should learn it at each grade level. Comprehensive research-affirmed analysis tools and strategies will help you and your collaborative team develop and assess student demonstrations of deep conceptual understanding and procedural fluency.

INTENSIFYING MATHEMATICS INTERVENTIONS FOR STRUGGLING STUDENTS

Guilford Publications "This book, Intensive Mathematics Interventions, provides a thorough background knowledge about mathematics difficulties across the grade span. Even more valuable to educators-this book provides user friendly guidance on how to address all of the elements of mathematics difficulties from preschool to secondary grades. Each topic provides clear guidance to support decision making about intensive instruction including examples, ideas, practices, and suggestions. You will learn about the characteristics of students with math difficulties, how to use data to progress monitor them, how to intensify interventions, specific evidence-based practices for addressing early numeracy, time and money, whole numbers, rational numbers, word problem solving strategies, algebra and even technology"--

MATHEMATICS EDUCATION IN THE EARLY YEARS

RESULTS FROM THE POEM4 CONFERENCE, 2018

Springer Nature This book gives insights in the vivid research area of early mathematics learning. The collection of selected chapters mirrors the research topics presented at the fourth POEM conference in May 2018. Thematically, the volume reflects the importance of this evolving area of research, which has begun to attract attention in the spheres of education and public policy due to increased interest in early years learning. The research foci of the chapters comprise children's mathematical reasoning, early years mathematics teaching, and the role of parents for children's mathematical development. The 2018 conference included a wider range of researchers than previous years.

MIDDLE GRADES RESEARCH JOURNAL

VOLUME 13 #1

IAP Middle Grades Research Journal (MGRJ) is a refereed, peer reviewed journal that publishes original studies providing both empirical and theoretical frameworks that focus on middle grades education. A variety of articles are published quarterly in March, June, September, and December of each volume year.

MATHEMATICS AS THE SCIENCE OF PATTERNS

MAKING THE INVISIBLE VISIBLE TO STUDENTS THROUGH TEACHING

IAP Mathematics as the Science of Patterns: Making the Invisible Visible to Students through Teaching introduces the reader to a collection of thoughtful, research-based works by authors that represent current thinking about mathematics, mathematics education, and the preparation of mathematics teachers. Each chapter focuses on mathematics teaching and the preparation of teachers who will enter classrooms to instruct the next generation of students in mathematics. The value of patterns to the teaching and learning of mathematics is well understood, both in terms of research and application. When we involve or appeal to pattern in teaching mathematics, it is usually

because we are trying to help students to extract greater meaning, or enjoyment, or both, from the experience of learning environments within which they are occupied, and perhaps also to facilitate remembering. As a general skill it is thought that the ability to discern a pattern is a precursor to the ability to generalize and abstract, a skill essential in the early years of learning and beyond. Research indicates that the larger problem in teaching mathematics does not lie primarily with students; rather it is with the teachers themselves. In order to make changes for students there first needs to be a process of change for teachers. Understanding the place of patterns in learning mathematics is a predicate to understanding how to teach mathematics and how to use pedagogical reasoning necessary in teaching mathematics. Importantly, the lack of distinction created by the pedagogical use of patterns is not immediately problematic to the student or the teacher. The deep-seated cognitive patterns that both teachers and students bring to the classroom require change. Chapter 1 opens the book with a focus on mathematics as the science of patterns and the importance of patterns in mathematical problem solving, providing the reader with an introduction. The authors of Chapter 2 revisit the work of Polya and the development and implementation of problem solving in mathematics. In Chapter 3, the authors present an argument for core pedagogical content knowledge in mathematics teacher preparation. The authors of Chapter 4 focus on preservice teachers' patterns of conception as related to understanding number and operation. In Chapter 5 the authors examine the role of visual representation in exploring proportional reasoning, denoting the importance of helping learners make their thinking visible. The authors of Chapter 6 examine patterns and relationships, and the importance of each in assisting students' learning and development in mathematical understanding. The authors of Chapter 7 examine the use of worked examples as a scalable practice, with emphasis on the importance of worked examples in teaching fraction magnitude and computation is discussed. In Chapter 8, the authors expand on the zone of proximal development to investigate the potential of Zankov's Lesson in terms of students analyzing numerical equalities. The authors of Chapter 9 focus on high leverage mathematical practices in elementary pre-service teacher preparation, drawing into specific relief the APEX cycle to develop deep thinking. In Chapter 10, the author focuses on number talks and the engagement of students in mathematical reasoning, which provides opportunities for students to be sensemakers of mathematics. Chapter 11 presents an epilogue, focusing on the importance of recognizing the special nature of mathematics knowledge for teaching.

ARGUING WITH NUMBERS

THE INTERSECTIONS OF RHETORIC AND MATHEMATICS

Penn State Press As discrete fields of inquiry, rhetoric and mathematics have long been considered antithetical to each other. That is, if mathematics explains or describes the phenomena it studies with certainty, persuasion is not needed. This volume calls into question the view that mathematics is free of rhetoric. Through nine studies of the intersections between these two disciplines, *Arguing with Numbers* shows that mathematics is in fact deeply rhetorical. Using rhetoric as a lens to analyze mathematically based arguments in public policy, political and economic theory, and even literature, the essays in this volume reveal how mathematics influences the values and beliefs with which we assess the world and make decisions and how our worldviews influence the kinds of mathematical instruments we construct and accept. In addition, contributors examine how concepts of rhetoric—such as analogy and visuality—have been employed in mathematical and scientific reasoning, including in the theorems of mathematical physicists and the geometrical diagramming of natural scientists. Challenging academic orthodoxy, these scholars reject a math-equals-truth reduction in favor of a more constructivist theory of mathematics as dynamic, evolving, and powerfully persuasive. By bringing these disparate lines of inquiry into conversation with one another, *Arguing with Numbers* provides inspiration to students, established scholars, and anyone inside or outside rhetorical studies who might be interested in exploring the intersections between the two disciplines. In addition to the editors, the contributors to this volume are Catherine Chaput, Crystal Broch Colombini, Nathan Crick, Michael Dreher, Jeanne Fahnestock, Andrew C. Jones, Joseph Little, and Edward Schiappa.

STATISTICS IN EARLY CHILDHOOD AND PRIMARY EDUCATION

SUPPORTING EARLY STATISTICAL AND PROBABILISTIC THINKING

Springer This compilation focuses on the theory and conceptualisation of statistics and probability in the early years and the development of young children's (ages 3-10) understanding of data and chance. It provides a comprehensive overview of cutting-edge international research on the development of young learners' reasoning about data and chance in formal, informal, and non-formal educational contexts. The authors share insights into young children's statistical and probabilistic reasoning and provide early childhood educators and researchers with a wealth of illustrative examples, suggestions, and practical strategies on how to address the challenges arising from the introduction of statistical and probabilistic concepts in pre-school and school curricula. This collection will inform practices in research and teaching by providing a detailed account of current best practices, challenges, and issues, and of future trends and directions in early statistical and probabilistic learning worldwide. Further, it will contribute to future research and theory building by addressing theoretical, epistemological, and methodological considerations regarding the design of probability and statistics learning environments for young children.

CULTURALLY RELEVANT TEACHING

PREPARING TEACHERS TO INCLUDE ALL LEARNERS

Rowman & Littlefield The purpose of this edited volume is to provide educators and graduate students/scholars in the

field of education with the knowledge, skills, and dispositions to facilitate student success.

MATHEMATICS MATTERS IN EDUCATION

ESSAYS IN HONOR OF ROGER E. HOWE

Springer This book is inspired by Roger E. Howe's contributions to the international communities of mathematics and mathematics education. Renowned for his research contributions in the fields of representation theory, automorphic forms, harmonic analysis, and invariant theory, Dr. Howe has also fundamentally deepened our understanding of the mathematics taught in the early school grades and has challenged and stimulated mathematicians and mathematics educators to work together to examine this part of the mathematical universe more critically and in imaginative new ways. This volume will help summarize and highlight Howe's contributions to several topic areas in mathematics education, demonstrating the possibility and importance of engaging mathematicians in high-impact research in mathematics education, and showcasing the importance of cross-disciplinary collaboration and exchange.

HANDBOOK OF RESEARCH-BASED PRACTICE IN EARLY EDUCATION

Guilford Publications Written expressly for early childhood educators, and those who support their professional development, this handbook distills essential knowledge about how to help all PreK-3 learners succeed. Leading experts describe doable ways to create effective learning environments and implement instructional practices with a strong evidence base. Engaging vignettes illustrate discussions of such topics as differentiated instruction, response to intervention, the Common Core standards, social and emotional learning, assessment, and teaching across the curriculum. Each chapter links cutting-edge research to practical applications, examples, and professional development activities.

RESEARCH ANTHOLOGY ON CULTURALLY RESPONSIVE TEACHING AND LEARNING

IGI Global As education continues to take great strides to become more inclusive and understanding of diverse students and cultures, teaching practices and methods for learning are an essential part of the puzzle and must be addressed to create culturally responsive educational experiences. Teachers must make meaningful connections between a student's culture, language, life experiences, and background to what the student is learning in the classroom. By integrating culture into the classroom, student achievement can be fostered, and students can excel. Underserved populations may face discrimination when it comes to culture, language, or race, and their needs can often be neglected. By implementing culturally responsive teaching, students can feel valued, motivated, understood, and included in their education. The Research Anthology on Culturally Responsive Teaching and Learning displays the best practices and lessons learned for culturally responsive teaching and learning across different types of institutions, classroom subjects, and with different types of students from diverse cultural backgrounds. The chapters focus on culturally responsive practices and how these methods for teaching can impact student success, empowerment, and cultural competence. This book is essential in understanding cultural diversity and inequity in education as well as the ways to address it. This book is ideal for faculty, teachers, counselors, administrators, principals, curriculum developers, instructional designers, professionals, researchers, and students seeking to improve their understanding of culturally responsive teaching and learning.

MATH EDUCATION FOR AMERICA?

POLICY NETWORKS, BIG BUSINESS, AND PEDAGOGY WARS

Routledge *Math Education for America?* analyzes math education policy through the social network of individuals and private and public organizations that influence it in the United States. The effort to standardize a national mathematics curriculum for public schools in the U.S. culminated in 2010 when over 40 states adopted the Common Core State Standards for Mathematics. Rather than looking at the text of specific policy documents, this book complements existing critical reviews of the national math education curriculum by employing a unique social network analysis. Breaking new ground in detailing and theorizing the politics of math education, Wolfmeyer argues that the private interests of this network are closely tied to a web of interrelated developments: human capital education policy, debates over traditional and reform pedagogy, the assumed content knowledge deficit of math teachers, and the proliferation of profit-driven educational businesses. By establishing the interconnectedness of these interests with the national math education curriculum, he shows how the purported goals of math education reform are aligned with the prevailing political agendas of this social network rather than the national interest.

FIGURING OUT FLUENCY IN MATHEMATICS TEACHING AND LEARNING, GRADES K-8

MOVING BEYOND BASIC FACTS AND MEMORIZATION

Corwin Press Because fluency practice is not a worksheet. Fluency in mathematics is more than adeptly using basic facts or implementing algorithms. Real fluency involves reasoning and creativity, and it varies by the situation at hand. *Figuring Out Fluency in Mathematics Teaching and Learning* offers educators the inspiration to develop a deeper understanding of procedural fluency, along with a plethora of pragmatic tools for shifting classrooms toward a fluency approach. In a friendly and accessible style, this hands-on guide empowers educators to support students in acquiring the repertoire of reasoning strategies necessary to becoming versatile and nimble mathematical thinkers. It includes: "Seven Significant Strategies" to teach to students as they work toward procedural fluency. Activities, fluency

routines, and games that encourage learning the efficiency, flexibility, and accuracy essential to real fluency. Reflection questions, connections to mathematical standards, and techniques for assessing all components of fluency. Suggestions for engaging families in understanding and supporting fluency. Fluency is more than a toolbox of strategies to choose from; it's also a matter of equity and access for all learners. Give your students the knowledge and power to become confident mathematical thinkers.

TEACHING AND LEARNING ALGEBRAIC THINKING WITH 5- TO 12-YEAR-OLDS

THE GLOBAL EVOLUTION OF AN EMERGING FIELD OF RESEARCH AND PRACTICE

Springer This book highlights new developments in the teaching and learning of algebraic thinking with 5- to 12-year-olds. Based on empirical findings gathered in several countries on five continents, it provides a wealth of best practices for teaching early algebra. Building on the work of the ICME-13 (International Congress on Mathematical Education) Topic Study Group 10 on Early Algebra, well-known authors such as Luis Radford, John Mason, Maria Blanton, Deborah Schifter, and Max Stephens, as well as younger scholars from Asia, Europe, South Africa, the Americas, Australia and New Zealand, present novel theoretical perspectives and their latest findings. The book is divided into three parts that focus on (i) epistemological/mathematical aspects of algebraic thinking, (ii) learning, and (iii) teaching and teacher development. Some of the main threads running through the book are the various ways in which structures can express themselves in children's developing algebraic thinking, the roles of generalization and natural language, and the emergence of symbolism. Presenting vital new data from international contexts, the book provides additional support for the position that essential ways of thinking algebraically need to be intentionally fostered in instruction from the earliest grades.

ACQUISITION OF COMPLEX ARITHMETIC SKILLS AND HIGHER-ORDER MATHEMATICS CONCEPTS

Academic Press Acquisition of Complex Arithmetic Skills and Higher-Order Mathematics Concepts focuses on typical and atypical learning of complex arithmetic skills and higher-order math concepts. As part of the series Mathematical Cognition and Learning, this volume covers recent advances in the understanding of children's developing competencies with whole-number arithmetic, fractions, and rational numbers. Each chapter covers these topics from multiple perspectives, including genetic disorders, cognition, instruction, and neural networks. Covers innovative measures and recent methodological advances in mathematical thinking and learning Contains contributions that improve instruction and education in these domains Informs policy aimed at increasing the level of mathematical proficiency in the general public

WORK SMARTER, NOT HARDER

A FRAMEWORK FOR MATH TEACHING AND LEARNING

Rowman & Littlefield Publishers Help your students learn math and get results by working smarter, not harder! This book provides a research-based, classroom-tested framework that helps make teaching easier. Learn how to design your classroom physical space, develop productive routines, plan effective lessons and facilitate meaningful discussions by using formative assessment to help students learn. This framework naturally integrates the Standards for Mathematical Practice in the Common Core Standards into the process of teaching. Spend your time working smarter not harder to get results in student learning! This book is perfect for individual teachers, Professional Learning Communities (PLC's), math coaches, for pre-service or in-service math methods courses.

UNDERSTANDING COMMUNITY COLLEGES

Routledge Understanding Community Colleges provides a critical examination of contemporary issues and practices and policy of community colleges. This contributed volume brings together highly respected scholars as well as new scholars for a comprehensive analysis of the community college landscape, including management and governance, finance, student demographics and development, teaching and learning, policy, faculty, and workforce development. Written for students enrolled in higher education and community college graduate programs, as well as social sciences scholars, this provocative new edition covers the latest developments in the field, including trends in enrollment, developmental education, student services, funding, and shared governance. At the end of each chapter, the "Questions for Discussion" section helps to bridge the gap between research and practice.

EVIDENCE, POLITICS, AND EDUCATION POLICY

Harvard Education Press In Evidence, Politics, and Education Policy, political scientists Lorraine M. McDonnell and M. Stephen Weatherford provide an original analysis of evidence use in education policymaking to help scholars and advocates shape policy more effectively. The book shows how multiple types of evidence are combined as elected officials and their staffs work with researchers, advocates, policy entrepreneurs, and intermediary organizations to develop, create, and implement education policies. Evidence, Politics, and Education Policy offers an in-depth understanding of the political environment in which evidence is solicited and used. Two key case studies inform the book's findings. The primary case—a major, multimethod study—examines the development and early implementation of the Common Core State Standards at the national level and in four states: California, Indiana, Massachusetts, and Tennessee. A comparative case analyzes the evidence used in Congressional hearings over the twenty-year history of the Children's Health Insurance Program. Together, the two cases illustrate the conditions under which different types

of evidence are used and, in particular, how federalism, the complexity of the policy problem, and the policy's maturity shape evidence use. McDonnell and Weatherford focus on three leverage points for strengthening the use of research evidence in education policy: integrating research findings with value-based policy ideas; designing policies with incentives for research use built into their rules and organizational structures; and training policy analysts to promote the use of research in policymaking venues.

EDUCATIONAL RESEARCH AND INNOVATION PEDAGOGICAL KNOWLEDGE AND THE CHANGING NATURE OF THE TEACHING PROFESSION

OECD Publishing Highly qualified and competent teachers are fundamental for equitable and effective education systems. Teachers today are facing higher and more complex expectations to help students reach their full potential and become valuable members of 21st century society. The nature and variety of these ...

TEACHING ELEMENTARY MATHEMATICS TO STRUGGLING LEARNERS

Guilford Publications Packed with effective instructional strategies, this book explores why certain K-5 students struggle with math and provides a framework for helping these learners succeed. The authors present empirically validated practices for supporting students with disabilities and others experiencing difficulties in specific areas of math, including problem solving, early numeracy, whole-number operations, fractions, geometry, and algebra. Concrete examples, easy-to-implement lesson-planning ideas, and connections to state standards, in particular the Common Core standards, enhance the book's utility. Also provided is invaluable guidance on planning and delivering multi-tiered instruction and intervention.

POLICY, PROFESSIONALIZATION, PRIVATIZATION, AND PERFORMANCE ASSESSMENT

AFFORDANCES AND CONSTRAINTS FOR TEACHER EDUCATION PROGRAMS

Springer This volume reviews the background of mandated teacher performance assessment with an emphasis on policy, privatization, and professionalization. The authors discuss the potential impact of mandated teacher performance assessments on teacher education in the content areas of mathematics, English, and social studies. The perspectives and empirical research examined in this conceptual analysis illustrate the various ways in which the Stanford Center for Assessment, Learning, and Equity (SCALE) Teacher Performance Assessment (edTPA) promises to restructure teacher education in the United States. The authors consider both the affordances and the constraints that teacher performance assessments offer for teacher preparation programs, and conclude by discussing the implications of the intersections among policy, privatization, professionalization, and performance assessments of teachers, as well as the relationship between performance assessments and teacher education. The impact of the edTPA on the development of signature pedagogies in teacher education is also discussed.

MATH INSTRUCTION FOR STUDENTS WITH LEARNING DIFFICULTIES

Routledge This richly updated third edition of Math Instruction for Students with Learning Difficulties presents a research-based approach to mathematics instruction designed to build confidence and competence in preservice and inservice PreK- 12 teachers. Referencing benchmarks of both the National Council of Teachers of Mathematics and Common Core State Standards for Mathematics, this essential text addresses teacher and student attitudes towards mathematics as well as language issues, specific mathematics disabilities, prior experiences, and cognitive and metacognitive factors. Chapters on assessment and instruction precede strands that focus on critical concepts. Replete with suggestions for class activities and field extensions, the new edition features current research across topics and an innovative thread throughout chapters and strands: multi-tiered systems of support as they apply to mathematics instruction.

PROVING IN THE ELEMENTARY MATHEMATICS CLASSROOM

Oxford University Press Although proving is core to mathematics as a sense-making activity, it currently has a marginal place in elementary classrooms internationally. Blending research with practical perspectives, this book addresses what it would take to elevate the place of proving at elementary school. The book uses classroom episodes from two countries to examine different kinds of proving tasks and the proving activity they can generate in the elementary classroom. It examines further the role of teachers in mediating the relationship between proving tasks and proving activity, including major mathematical and pedagogical issues that arise for teachers as they implement each kind of proving task. In addition to its contribution to research knowledge, the book has important implications for teaching, curricular resources, and teacher education.

BUILDING THE FOUNDATION: WHOLE NUMBERS IN THE PRIMARY GRADES

THE 23RD ICMI STUDY

Springer This twenty-third ICMI Study addresses for the first time mathematics teaching and learning in the primary school (and pre-school) setting, while also taking international perspectives, socio-cultural diversity and institutional constraints into account. One of the main challenges of designing the first ICMI primary school study of this kind is the complex nature of mathematics at the early level. Accordingly, a focus area that is central to the discussion was chosen, together with a number of related questions. The broad area of Whole Number Arithmetic (WNA), including

operations and relations and arithmetic word problems, forms the core content of all primary mathematics curricula. The study of this core content area is often regarded as foundational for later mathematics learning. However, the principles and main goals of instruction on the foundational concepts and skills in WNA are far from universally agreed upon, and practice varies substantially from country to country. As such, this study presents a meta-level analysis and synthesis of what is currently known about WNA, providing a useful base from which to gauge gaps and shortcomings, as well as an opportunity to learn from the practices of different countries and contexts.

TEACHING AND LEARNING MATHEMATICS ONLINE

CRC Press Online education has become a major component of higher education worldwide. In mathematics and statistics courses, there exists a number of challenges that are unique to the teaching and learning of mathematics and statistics in an online environment. These challenges are deeply connected to already existing difficulties related to math anxiety, conceptual understanding of mathematical ideas, communicating mathematically, and the appropriate use of technology. Teaching and Learning Mathematics Online bridges these issues by presenting meaningful and practical solutions for teaching mathematics and statistics online. It focuses on the problems observed by mathematics instructors currently working in the field who strive to hone their craft and share best practices with our professional community. The book provides a set of standard practices, improving the quality of online teaching and the learning of mathematics. Instructors will benefit from learning new techniques and approaches to delivering content. Features Based on the experiences of working educators in the field Assimilates the latest technology developments for interactive distance education Focuses on mathematical education for developing early mathematics courses