Mathematics And Mathematical Literacy Project 2014

The Development of Early Childhood Mathematics Education, Volume 53 in the Advances in Child Development and Behavior series, includes chapters that highlight some of the most recent research in the field of developmental psychology. Users will find updated chapters on a variety of topics, including sections on The DREME Network: Research and Interventions in Early Childhood Mathematics, The Use of Concrete Experiences in Early Childhood Mathematics Instruction, Interventions in Early Mathematics: Avoiding Pollution and Dilution, Coaching in Early Mathematics, and Designing Studies to Test Causal Questions About Early Math: The Development of Making Pre-K Count. Each chapter provides in-depth discussions, with this volume serving as an invaluable resource for developmental or educational psychology researchers, scholars and students. Contains chapters that highlight some of the most recent research in the area of child development and behavior Presents a wide array of topics that are discussed in detail

This unique publication is written for practitioners in the field of adult learning and literacy. This third volume in the series from the National Center for the Study of Adult Learning and Literacy (NCSALL). This is a collection of the best new knowledge and practice in the field, and includes an introduction by the editors and six articles by distinguished writers and practitioners, as well as reviews of the best books and key journal articles published in the past year.

Ideas for 21st Century Education contains the papers presented at the Asian Education Symposium (AES 2016), held on November 22—23, 2016, in Bandung, Indonesia. The book covers 11 topics: 1. Art Education (AED) 2. Adult Education (ADE) 3. Business Education (BED) 4. Course Management (CMT) 5. Curriculum, Research and Development (CRD) 6. Educational Foundations (EDF) 7. Learning / Teaching Methodologies and Assessment (TMA) 8. Global Issues in Education and Research (GER) 9. Pedagogy (PDG) 10. Ubiquitous Learning (UBL) 11. Other Areas of Education (OAE)

This document presents a field hearing of the Governmental Affairs Committee to examine the current reform efforts in science and mathematics education at the federal and state levels, focusing specifically on the experiences of Ohio. Nine witnesses representing various educational levels presented testimony concerning mathematics and science education initiatives in Ohio. Initiatives and issues discussed included: (1) the Ohio Proficiency Test; (2) Project Discovery, a project focusing on preparing middle school students to think critically and solve problems; (3) the National Center for Science Teaching and Learning; (4) curriculum reform; (5) societal factors influencing reform; (6) collaboration among the higher education, public education, and business sectors; (7) the B-WISER Institute, a summer camp and follow-up program that empowers young women to achieve in science; and (8) the under-representation of minorities and women in mathematics and science. Appendices contain copies of prepared statements by the witnesses and other participants. (MDH)

Science and Math Education Reform

Large-Scale Assessment and Classroom Assessment

Stories and Strategies for Supporting Mathematical Literacy

Mathematics Education

Assessment in Mathematics Education

Hearing Before the Committee on Governmental Affairs, United States Senate, One Hundred Second Congress, Second Session, July 7, 1992 (Cleveland, Ohio).

The Development of Early Childhood Mathematics Education

This work reports the findings of the Professional Competence of Teachers, Cognitively Activating Instruction, and Development of Students´ Mathematical Literacy project (COACTIV). COACTIV applies a broad, innovative conceptualization of teacher competence to examine how mathematics teachers' knowledge, beliefs, motivational orientations, and self-regulation skills influence their instructional practice and teaching outcomes In this project data was collected on various aspects of teacher competence and classroom instruction from the perspective of both the teachers themselves and their students. Moreover, it gauges the effects of these teacher characteristics on student learning, as indexed by the progress students in each class. Questions addressed in the study which are reported in this volume include: What are the characteristics of successful teaching? What distinguishes teachers who succeed in their profession? How can the quality of instruction be improved?

This book describes the design, development, delivery and impact of the mathematics assessment for the OECD Programme for International Student Assessment (PISA). First, the origins of PISA's concept of mathematical literacy are discussed, highlighting the underlying themes of mathematics as preparation for life after school and mathematical modelling of the real world, and clarifying PISA's position within this part of the mathematics education territory. The PISA mathematics framework is introduced as a significant milestone in the development and dissemination of these ideas. The underlying mathematical competencies on which mathematical literacy so strongly depends are described, along with a scheme to use them in item creation and analysis. The development and implementation of the PISA survey and the consequences for the outcomes are thoroughly discussed. Different kinds of items for both paper-based and computer-based PISA surveys are exemplified by many publicly released items along with details of scoring. The novel survey of the opportunity students have had to learn the mathematics promoted through PISA is explained. The book concludes by surveying international impact. It presents viewpoints of mathematics educators on how PISA and its constituent ideas and methods have influenced teaching and learning practices, curriculum arrangements, assessment practices, and the educational debate more generally in fourteen countries.

What makes mathematics so confusing to students? To succeed in the study of arithmetic, geometry, or algebra, students must learn what is effectively a second language of mathematical terms and symbols. In Literacy Strategies for Improving Mathematics Instruction, Joan M. Kenney and her coauthors describe common ways in which students misinterpret the language of mathematics, and show teachers what they can do to ensure that their students become fluent in that language. The authors synthesize the research on what it takes to decode mathematical text, explain how teachers can use guided discourse and graphic representations to help students develop mathematical literacy skills, offer guidance on using action research to enhance mathematics instruction, and discuss the importance of student-centered learning and concept-building skills in the classroom. Real-life vignettes of student struggles illuminate the profound effect of literacy problems on student achievement in mathematics. This book will help teachers better understand their students' difficulties with mathematics and take the steps necessary to alleviate them. Abundantly researched and filled with helpful strategies and resources, it is an invaluable resource for mathematics teachers at all levels. Note: This product listing is for the reflowable (ePub) version of the book.

Study & Master Mathematical Literacy Grade 10 has been especially developed by an experienced author team according to the Curriculum and Assessment Policy Statement (CAPS). This new and easy-to-use course helps learners to master essential content and skills in Mathematical Literacy. The Teacher's File includes: * a weekly teaching schedule, divided into the four terms to guide the teacher on what to teach * extra project templates for teachers to choose from * solutions to all the activities in the Learner's Book.

Learning Mathematics in a Mobile App-Supported Math Trail Environment

The Maths Inside Project

Bridging the Gap Between Standards and Practice

What Have We Learned?

Can We Stand and Deliver?

The Social Math Literacy Project: a Professional Development that Scaffolds Teaching Open-ended Math Problems with an Emphasis in Social Justice

Mathematical Literacy in the Workplace

The Curriculum Topic Study (CTS) process provides a professional development strategy that links mathematics standards and research to curriculum, instruction, and assessment.

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.

Many K–6 teachers--and students--still think of mathematics as a totally separate subject from literacy. Yet incorporating math content into the language arts block helps students gain skills for reading many kinds of texts. And bringing reading, writing, and talking into the math classroom supports the development of conceptual knowledge and problem solving, in addition to computational skills. This invaluable book thoroughly explains integrated instruction and gives teachers the tools to make it a reality. Grounded in current best practices for both language arts and math, the book includes planning advice, learning activities, assessment strategies, reproducibles, and resources, plus a wealth of examples from actual classrooms.

In the context of the Fourth Industrial Revolution, a world of continuous alterations is glimpsed where science and technology are at the base of economic competitiveness and where innovation plays a strategic role in global competition, so that they are forced to cover a series of requirements to compete successfully in an increasingly globalized economy, including high investments in both education and research. Along these lines, the formation of mathematical learning is important because it is oriented towards the development of a set of skills with the aim of resolving situations of daily and professional lives. It focuses on the acquisition of employing the different ways of representing information in the form of models, constructions, and graphs to determine the best decision making. In this sense, it includes the mastery of the handling of numbers, measures, and structures to carry out the interpretation of operations and representations of a quantitative nature on personal and professional situations. For a society to favor innovation, the use of mathematical information is an essential condition that allows the development of creativity and analysis of information. Mathematics education plays a vital role in this development. Developing Mathematical Literacy in the Context of the Fourth Industrial Revolution studies the formation of mathematical abilities in the context of the Fourth Industrial Revolution regarding its development of both teaching and learning strategies, as well as the use of ICT and its use in the development of this discipline in students. It is important that teachers of any educational level reorient their teaching strategies and their role as educators. Therefore, the chapters discuss up-to-date and relevant information on teaching and didactic tasks in the subject of mathematics. This book highlights mathematical pedagogies, ICT in mathematics learning, teacher training, and classroom strategies for mathematics. It is intended for teachers, pedagogical advisors, business trainers, higher education staff, administrators, teacher educators, practitioners, stakeholders, researchers, academicians, and students interested in mathematical literacy in the fourth industrial revolution.

Mathematical Literacy

Math for All Ages : a Project of the Dartmouth Literacy Network

Proceedings of the Asian Education Symposium (AES 2016), November 22-23, 2016, Bandung, Indonesia

International Handbook of Mathematics Education

Learning and Teaching Real World Problem Solving in School Mathematics

Hearings Before a Subcommittee of the Committee on Appropriations, United States Senate, One Hundred First Congress, First Session, on H.R. 2990/H.R. 3566 ....

mathematical literacy and cross curricular competencies through interdisciplinary, mathematising and modelling science ; an European cooperation project between universities and schools of Germany, Denmark, Slovenia and Finland ; results and material

In teaching and learning mathematics, the challenge has always been giving the subject a more realistic approach as well as providing students with opportunities to investigate and discover math concepts. Historically, teachers spend vast amounts of time talking and lecturing students, giving the subject a more banking approach rather than a problem-posing approach. Such results were confirmed by Boaler and Staples's study (2008) in which they concluded, "48% of the [class] time students were practicing methods in their books, working individually, and students presented work for approximately 0.2% of the time" (p. 619). There has been a lack of a problem-based approach to teaching mathematics, but more importantly, there has been a lack of giving the mathematics the opportunity to shine as a tool for students to become quantitatively literate. The Social Math Literacy Project opens doors to the educational community to explore and become aware of the social challenges in the students' everyday lives and to grasp these challenges rather than ignore them through mathematics. Sources of Information The project was created using H. Freudenthal's ideas of Realistic Mathematics Education (RME) that focus on teaching mathematics as a human activity and Freire's problem-posing education as the practice of freedom. I created a professional development that approaches a problem-based mathematics with a social justice emphasis, transforming RME problems into problems that will ensure social discourse in math classes as well as achievement of math skills. Conclusions Reached As I researched and learned about the importance of teaching and learning mathematics with a problem-based focus, I also learned about the lack of a more social justice approach to education in general. A problem-centered mathematics curriculum can serve as a means to achieving democratic values that will eventually translate to a more tolerant, peaceful, and empathetic society. In other words, a curriculum, such as the one developed in this project, that respects students' funds of knowledge, their home cultures, and their intelligences will ensure their success as individuals in a changing, demanding, and dynamic society.

This book provides an overview of current research on a variety of topics related to both large-scale and classroom assessment. First, the purposes, traditions and principles of assessment are considered, with particular attention to those common to all levels of assessment and those more connected with either classroom or large-scale assessment. Assessment design based on sound assessment principles is discussed, differentiating between large-scale and classroom assessment, but also examining how the design principles overlap. The focus then shifts to classroom assessment and provides specific examples of assessment strategies, before examining the impact of large-scale assessment on curriculum, policy, instruction, and classroom assessment. The book concludes by discussing the challenges that teachers currently face, as well as ways to support them. The book offers a common language for researchers in assessment, as well as a primer for those interested in understanding current work in the area of assessment. In summary, it provides the opportunity to discuss large-scale and classroom assessment by addressing the following main themes: ·Purposes, Traditions and Principles of Assessment ·Design of Assessment Tasks ·Classroom Assessment in Action ·Interactions of Large-Scale and Classroom Assessment ·Enhancing Sound Assessment Knowledge and Practices It also suggests areas for future research in assessment in mathematics education.

The book consists of 16 chapters and 2 commentaries describing long term R&D projects in science and mathematics education conducted in the Department of Science Teaching, The Weizmann Institute of Science. Almost all the chapters describe long-term projects, some over the period of 50 years.

Mathematics education in the United States can reproduce social inequalities whether schools use either "basic-skills" curricula to prepare mainly low-income students of color for low-skilled service jobs or "standards-based" curricula to ready students for knowledge-intensive positions. And working for fundamental social change and rectifying injustice are rarely included in any mathematics curriculum. Reading and Writing the World with Mathematics argues that mathematics education should prepare students to investigate and critique injustice, and to challenge, in words and actions, oppressive structures and acts. Based on teacher-research, the book provides a theoretical framework and practical examples for how mathematics educators can connect schooling to a larger sociopolitical context and concretely teach mathematics for social justice.

Educational Leadership and Administration: Concepts, Methodologies, Tools, and Applications

The Proceedings of the 12th International Congress on Mathematical Education

Helping Students Make Meaning in the Middle Grades

A New Approach to Literacy Programming for Libraries

The PISA Experience

Mathematical Literacy, Grade 10

Civil Rights Journal

Why do so many learners, even those who are successful, feel that they are outsiders in the world of mathematics? Taking the central importance of language in the development of mathematical understanding as its starting point, Mathematical Literacy explores students' experiences of doing mathematics from primary school to university - what they think mathematics is, how it is presented to them, and what they feel about it. Building on a range of theory which focuses on community, knowledge, and identity, the author examines two particular issues: the relationship between language, learning, and mathematical knowledge, and the relationship between identity, equity, and processes of exclusion/inclusion. In this comprehensive and accessible book, the author extends our understanding of the process of gaining mathematical fluency, and provides tools for an exploration of mathematics learning across different groups in different social contexts. Mathematical Literacy's analysis of how learners develop particular relationships with the subject, and what we might do to promote equity through the development of positive relationships, is of interest across all sectors of education—to researchers, teacher educators, and university educators.

This brief presents the results of a study on the development of the mobile app-supported math trail program for learning mathematics. This study is a part of the MathCityMap-Project, a project of the MATIS I Team from IDMI Goethe-Universität Frankfurt, Germany, that comprises math trails around the city that are supported by the use of GPS-enabled mobile phone technology. The project offers an activity that is designed to support students in constructing their own mathematical knowledge by solving the prepared mathematical tasks on the math trail and interacting with the environment, including the digital environment. The brief focuses specifically on the development of a model for a mobile app-supported math trail programme and the implementation of this programme in Indonesia. It offers both an empirical exploration of its implementation as well as critical assessment of students' motivation in mathematics, their own performance, as well as teachers' mathematics beliefs. It concludes with a future-forward perspective by recommending strategies for implementation in schools, among the general public of the existing math trails (including its supporting tool). It also discusses strategies for developing and designing new trails and suggests further research in other geographical regions and contexts for continued project development and implementation. Learning Mathematics in a Mobile App-Supported Math Trail Environment articulates an innovative and exciting future for integrating real mathematical tasks and geographic and digital environment into effective mathematics education.

The ultimate aim of this book is to identify the conceptual tools and the instructional modalities which enable students and teachers to cross the boundary between school mathematics and real world problem solving. The book identifies, examines, and integrates seven conceptual tools, of which five are constructs (activity theory, narrative, modeling, critical mathematics education, ethnomathematics) and two are contexts (STEM and the workplace). The author develops two closely linked multiple-perspective frameworks: one for learning real world problem solving in school mathematics, which sets the foundations of learning real world problem solving in school mathematics; and one for teaching real world problem solving in school mathematics, which explores the modalities of teaching real world problem solving in school mathematics. "The book is composed as, on the one hand, a high-level theoretical scholarly work on real world problem solving in school mathematics, and, on the other hand, a set of twelve narratives which, put together, constitute a thought-provoking and moving personal and professional autobiography." - Mogens Niss "These narratives combine aspects of Murad's personal trajectory as an individual with those points in his professional career at which he became aware of perspectives on and approaches to mathematics education that were both significant in and of themselves, and instrumental for the specific scholarly endeavor presented in the book." - Mogens Niss

Mathematics Education offers both undergraduates and starting-graduate students in education an introduction to the connections that exist between mathematics and a critical orientation to education. This primer shows how concepts like race, class, gender, and language have real effects in the mathematics classroom, and prepares current and future mathematics teachers with a more critical math education that increases accessibility for all students. By refocusing math learning towards the goals of democracy and social and environmental crises, the book also introduces readers to broader contemporary school policy and reform debates and struggles. Mark Wolfmeyer shows future and current teachers how critical mathematics education can be put into practice with concrete strategies and examples in both formal and informal educational settings. With opportunities for readers to engage in deeper discussion through suggested activities, Mathematics Education's pedagogical features include: Study Questions for Teachers and Students Text Boxes with Examples of Critical Education in Practice Annotated List of Further Readings Glossary

Hands-On Math Projects With Real-Life Applications

The Annual Review of Adult Learning and Literacy

Radical Equations

A Leader's Guide to Mathematics Curriculum Topic Study

Reading and Writing the World with Mathematics

Making School Maths Engaging

A Critical Introduction

Hands-On Math Projects with Real-Life Applications, Second Edition offers an exciting collection of 60 hands-on projects to help students in grades 6--12 apply math concepts and skills to solving everyday, real-life problems! The book is filled with classroom-tested projects that emphasize: cooperative learning, group sharing, verbalizing concepts and ideas, efficient researching, and writing clearly in mathematics and across other subject areas. Each project achieves the goal of helping to build skills in problem solving, critical thinking, and decision making, and supports an environment in which positive group dynamics flourish. Each of the projects follows the same proven format and includes instructions for the teacher, a Student Guide, and one or more reproducible datasheets and worksheets. They all include the elements needed for a successful individual or group learning experience. The projects are easily implemented and can stand alone, and they can be used with students of various grade levels and abilities. This thoroughly revised edition of the bestseller includes some new projects, as well as fresh information about technology-based and e-learning strategies and enhancements; No Child Left Behind standards; innovative teaching suggestions with activities, exercises, and standards-based objectives; reading and literacy connections; and guidelines and objectives for group and team-building projects. Hands-On Math Projects with Real-Life Applications is printed in a lay-flat format, for easy photocopying and to help you quickly find appropriate projects to meet the diverse needs of your students, and it includes a special Skills Index that identifies the skills emphasized in each project. This book will save you time and help you instill in your students a genuine appreciation for the world of mathematics. "The projects in this book will enable teachers to broaden their instructional program and provide their students with activities that require the application of math skills to solve real-life problems. This book will help students to realize the relevance and scope of mathematics in their lives." --Melissa Taylor, middle school mathematics teacher, Point Pleasant Borough, New Jersey

This book provides an account of a large-scale, national STEM initiative in Australia, the Maths Inside Project, which is designed to increase secondary school students ' engagement and participation in mathematics. The project ' s modules include videos illustrating how scientists use mathematics to find solutions to real-world problems, as well as themed activities linked to the school curriculum for mathematics. Outlining the current debates concerning mathematics education in Australia and beyond, the book describes the development and implementation of the modules to guide their use by teachers in year 8-12 Australian mathematics classrooms. It concludes with a discussion of the research, showing how the project increased student engagement. The book discusses the partners involved in the project, including scientists, a national mathematics teachers ' association and the authors ' university. It also offers insights into how to embark on pedagogical improvement through collaboration between individual institutional stakeholders. Providing details of the modules to enable teachers and teacher educators to help their students better understand and utilise the curriculum resources of Maths Inside, the book is a useful resource for educators around the globe wanting to make mathematics engaging, topical and relevant for secondary school students.

This book originated in a policy analysis class at Michigan State University taught during 2010. Using Professor Tatto ' s unique approach to teaching policy analysis, the professor and students agreed to construct a class that represented a reflective and grounded experience in the policy analysis of a current and relevant issue with global ramifications; we began exploring policies that were developed at the global level and that were implemented locally. We investigated the surge of globally developed standards and regulations in an effort to improve education. Our goal was to learn cross-nationally about policies that seek to reform curriculum and instruction under efficiency and global competitiveness arguments, such as Education for All (EFA) and its USA cousin No Child Left Behind (NCLB). We knew our work would be bounded by the time available in a one-semester class, and by resource constraints. We did exploratory inquiry supported by literature reviews, reports on rigorous research studies, and in one case an exploratory case study. The policies we chose to explore, such as EFA and NCLB, offered us the opportunity to examine current reform tendencies that are intended to provide access to quality education for all children, the preparation of teachers to support diverse populations, the organization of schools to accommodate these children in response to vague policy mandates, and power issues affecting the different constituencies and stakeholders. The effects of these and other policies were difficult to track because research is scant and decisions are frequently made based on ideology or political persuasion. Our purpose was to explore the critical issues that originated such policies, and to search for documented evidence regarding policy implementation and effectiveness. We investigated the factors that seemed to interfere with successful implementation, from conceptual, theoretical, and methodological perspectives. In this class we learned that there are not ready-set frameworks for policy analysis, but rather that these have to be constructed according to the issues that emerge as policies are conceptualized and implemented to fit local contexts and needs. The book pays particular attention to the contexts of policy, including the evolving conceptualization of global and local systems of governance, knowledge regimes, and policy spaces. The book is designed for faculty and doctoral students in education who are interested in understanding diverse frameworks for policy analysis, and for those in the general public who are interested in the policies we analyze here.

At a time when popular solutions to the educational plight of poor children of color are imposed from the outside-national standards, high-stakes tests, charismatic individual saviors-the acclaimed Algebra Project and its founder, Robert Moses, offer a vision of school reform based in the power of communities. Begun in 1982, the Algebra Project is transforming math education in twenty-five cities. Founded on the belief that math-science literacy is a prerequisite for full citizenship in society, the Project works with entire communities-parents, teachers, and especially students-to create a culture of literacy around algebra, a crucial stepping-stone to college math and opportunity. Telling the story of this remarkable program, Robert Moses draws on lessons from the 1960s Southern voter registration he famously helped organize: 'Everyone said sharecroppers didn't want to vote. It wasn't until we got them demanding to vote that we got attention. Today, when kids are falling wholesale through the cracks, people say they don't want to learn. We have to get the kids themselves to demand what everyone says they don't want.' We see the Algebra Project organizing community by community. Older kids serve as coaches for younger students and build a self-sustained tradition of leadership. Teachers use innovative techniques. And we see the remarkable success stories of schools like the predominately poor Hart School in Bessemer, Alabama, which outscored the city's middle-class flagship school in just three years. Radical Equations provides a model for anyone looking for a community-based solution to the problems of our disadvantaged schools. From the Trade Paperback edition.

Developing Identities of Inclusion

A Five-Year Study of the First Edition of the Core-Plus Mathematics Curriculum

Study and Master Mathematical Literacy Grade 12 CAPS Learner's Book

Living and Learning Mathematics

Maker Literacy: A New Approach to Literacy Programming for Libraries

Mathematics Curriculum Topic Study

Departments of Labor, Health and Human Services, Education, and Related Agencies Appropriations for Fiscal Year 1990

Language and communication are important to mathematics just as they are to the other content areas. Mathematical Literacy is a powerful resource that introduces you to a wide spectrum of strategies and approaches for building students' facility in mathematical communication. Mathematical Literacy demonstrates how immersion in the language of math supports improved learning through traditional communication skills such as: reading writing speaking listening as well as math-specific communication skills, including: symbolizing graphing creating diagrams using tables. It provides everything you need to increase the presence of mathematical language in your classroom, guiding you through the ample research base and theoretical underpinnings supporting its ideas, demonstrating implementation through detailed classroom vignettes, and presenting ready-to-use tools and activities that connect theory directly to practice. Whether you are an individual preservice or practicing teacher, part of a teacher book-study group, or creating whole-staff professional learning, Mathematical Literacy promotes professional learning with questions interspersed throughout that encourage reflection and prompt you to action. It offers many paths for teachers to take as they help students to improve their use of mathematical language and grow as mathematicians. Help every student become fluent readers, speakers, and writers of mathematics. Read Mathematical Literacy and give young adolescents new ways to explain their reasoning, make connections, debate their thinking with peers, and share their struggles - in short to understand mathematics deeply.

This book takes the creativity and inventiveness of the maker movement and applies that energy in a new way to help children learn across all subject areas as well as broaden their world view. • Addresses the avid interests of youth in technology • Provides librarians with a practical resource for incorporating tech literacy into storytime and other youth programs • Gives librarians a programming tool to use with makerspaces that can be used to integrate them with all areas of learning

This book is a critically important contribution to the work underway to transform schooling for students who have historically been denied access to a quality education, specifically African American children. The first section of the book provides some historical perspective critical to understanding the current state of education in the U.S., specifically for the education of African American children. The following sections include chapters on policy, learning, ethnomathematics, student identity, and teacher preparation as it relates to the mathematical education of Black children. Through offering "counternarratives" about mathematically successful Black youth, advocating for a curriculum that is grounded in African American culture and ways of thinking, providing shining examples of the brilliance of Blacks students, and promoting high expectations for all rather than situating students as the problem, the authors of this book provide powerful insights related to the teaching and learning of mathematics for African American students. As is made evident in this book, effective teaching involves much more than just engaging students in inquiry-based pedagogy (Kitchen, 2003). The chapters offered in this book demonstrate how mathematics instruction for African American students needs to take into account historical marginalization and present-day policies that do harm to Black students (Kunjufu, 2005). Empowering mathematics instruction for African American students needs to take into consideration and promote students' cultural, spiritual, and historical identities. Furthermore, mathematics instruction for African American students should create opportunities for students to express themselves and the needs of their communities as a means to promote social justice both within their classrooms and communities.

Designed for leaders, this guide explores how to use CTS as a professional development tool to strengthen mathematics programs and improve teaching and learning.

Integrating Literacy and Math

Literacy Strategies for Improving Mathematics Instruction

Results from the COACTIV Project

Civil Rights from Mississippi to the Algebra Project

Assessing Mathematical Literacy

Cognitive Activation in the Mathematics Classroom and Professional Competence of Teachers

The Brilliance of Black Children in Mathematics

The study reported in this volume adds to the growing body of evaluation studies that focus on the use of NSF-funded Standards-based high school mathematics curricula. Most previous evaluations have studied the impact of field-test versions of a curriculum. Since these innovative curricula were so new at the time of many of these studies, students and teachers were relative novices in their use. These earlier studies were mainly one year or less in duration. Students in the comparison groups were typically from schools in which some classes used a Standards-based curriculum and other classes used a conventional curriculum, rather than using the Standards-based curriculum with all students as curriculum developers intended. The volume reports one of the first studies of the efficacy of Standards-based mathematics curricula with all of the following characteristics: · The study focused on fairly stable implementations of a first-edition Standards-based high school mathematics curriculum that was used by all students in each of three schools. · It involved students who experienced up to seven years of Standards-based mathematics curricula and instruction in middle school and high school. · It monitored students' mathematical achievement, beliefs, and attitudes for four years of high school and one year after graduation. · Prior to the study, many of the teachers had one or more years of experience teaching the Standards-based curriculum and/or professional development focusing on how to implement the curriculum well. · In the study, variations in levels of implementation of the curriculum are described and related to student outcomes and teacher behavior variables. Item data and all unpublished testing instruments from this study are available at www.wmich.edu/cpmp/ for use as a baseline of instruments and data for future curriculum evaluators or Core-Plus Mathematics users who may wish to compare results of new groups of students to those in the present study on common tests or surveys. Taken together, this volume, the supplement at the CPMP Web site, and the first edition Core-Plus Mathematics curriculum materials (samples of which are also available at the Web site) serve as a fairly complete description of the nature and impact of an exemplar of first edition NSF-funded Standards-based high school mathematics curricula as it existed and was implemented with all students in three schools around the turn of the 21st century.

Study & Master Mathematical Literacy was developed with the help of practising teachers, and covers all the requirements of the National Curriculum Statement for Mathematical Literacy. Learner's Book: module openers, which clearly explain the outcomes key skills boxes, detailing the skills necessary to perform certain mathematical functions language skills activities, to assist in mastering the language of Mathematical Literacy assessment activites module reviews, which provide extra practice projects, which deal with issues related to the real world, and move learners beyond the confines of the classroom Teacher's Guide: an overview of the RNCS an introduction to outcomes-based education a detailed look at the Learning Outcomes and Assessment Standards for Mathematical Literacy, and how much time to allocate to each during the year information on managing assessment solutions to all the activities/xercises in the Learner's Book photocopiable assessment

This Handbook presents an overview and analysis of the international `state-of-the-field' of mathematics education at the end of the 20th century. The more than 150 authors, editors and chapter reviewers involved in its production come from a range of countries and cultures. They have created a book of 36 original chapters in four sections, surveying the variety of practices, and the range of disciplinary interconnections, which characterise the field today, and providing perspectives on the study of mathematics education for the 21st century. It is first and foremost a reference work, and will appeal to anyone seeking up-to-date knowledge about the main developments in mathematics education. These will include teachers, student teachers and student researchers starting out on a serious study of the subject, as well as experienced researchers, teacher educators, educational policy-makers and curriculum developers who need to be aware of the latest areas of knowledge development.

Describes the concept of mathematical literacy, and suggests projects and activities designed to develop children's interest in mathematics

A Multiple-Perspective Framework for Crossing the Boundary

Concepts, Methodologies, Tools, and Applications

The ScienceMath project

National Literacy Grants Program

Study and Master Mathematical Literacy Grade 10 Learner's Book

Ideas for 21st Century Education

Strategies for K-6 Teachers

The delivery of quality education to students relies heavily on the actions of an institution's administrative staff. Effective leadership strategies allow for the continued progress of modern educational initiatives. Educational Leadership and Administration: Concepts, Methodologies, Tools, and Applications provides comprehensive research perspectives on the multi-faceted issues of leadership and administration considerations within the education sector. Emphasizing theoretical frameworks, emerging strategic initiatives, and future outlooks, this publication is an ideal reference source for educators, professionals, school administrators, researchers, and practitioners in the field of education.

Grades 6-12

Developing Mathematical Literacy in the Context of the Fourth Industrial Revolution

Learning and Doing Policy Analysis in Education: Examining Diverse Approaches to Increasing Educational Access

Long-term Research and Development in Science Education

Intellectual and attitudinal challenges

Toward a Pedagogy for Social Justice