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## **Sqa Specimen Paper 2014 Past Paper National 5 Lifeskills Mathematics**

In recent years, funding agencies like the Institute of Educational Sciences and the National Science Foundation have increasingly emphasized large-scale studies with experimental and quasi-experimental designs looking for 'objective truths'. Educational researchers have recently begun to use large-scale studies to understand what really works, from developing interventions, to validation studies of the intervention, and then to efficacy studies and the final "scale-up" for large implementation of an intervention. Moreover, modeling student learning developmentally, taking into account cohort factors, issues of socioeconomic, local political context and the presence or absence of interventions requires the use of large data sets, wherein these variables can be sampled adequately and inferences made. Inroads in quantitative methods have been made in the psychometric and sociometric literatures, but these methods are not yet common knowledge in the mathematics education community. In fact, currently there is no volume devoted to discussion of issues related to large-scale studies and to report findings from them. This volume is unique as it directly discusses methodological issue in large-scale studies and reports empirical data from large-scale studies.

## **SQA Past Papers 2013 Intermediate 2 Mathematics**

This third edition of the Handbook of International Research in Mathematics Education provides a comprehensive overview of the most recent theoretical and practical developments in the field of mathematics education. Authored by an array of internationally recognized scholars and edited by Lyn English and David Kirshner, this collection brings together overviews and advances in mathematics education research spanning established and emerging topics, diverse workplace and school environments, and globally representative research priorities. New perspectives are presented on a range of critical topics including embodied learning, the theory-practice divide, new developments in the early years, educating future mathematics education professors, problem solving in a 21st century curriculum, culture and mathematics learning, complex systems, critical analysis of design-based research, multimodal technologies, and e-textbooks. Comprised of 12 revised and 17 new chapters, this edition extends the Handbook's original themes for international research in mathematics education and remains in the process a definitive resource for the field.

## **Mathematics for the IB Diploma: Applications and interpretation SL**

Educational Psychology, Second Edition offers a comprehensive overview of how key advances in social, developmental and cognitive psychology impact upon the role of educational psychologists working today. Written by leading researchers, the book also explores controversies and dilemmas in both research and practice, providing students with a balanced and cutting-edge introduction to both the field and the profession. Fully revised throughout, the new edition is written to encourage students to integrate their understanding of core psychological disciplines, as well as to consider what 'evidence-based practice' really means. Organized into two broad sections related to learning and behaviour, the book features a selection of vignettes from educational psychologists working in a range of contexts, as well as tasks and scenarios to support a problem-orientated approach to study. By integrating both research and everyday practice, the book is unique in engaging a critical appreciation of both the possibilities and limitations of educational psychology. It is the ideal book for any student wishing to engage with this important and evolving field of study.

## **Mathematics for the IB Diploma: Analysis and approaches SL**

The book provides an overview of state-of-the-art research from Brazil and Germany in the field of inclusive mathematics education. Originated from a research cooperation between two countries where inclusive education in mathematics has been a major challenge, this volume seeks to make recent research findings

available to the international community of mathematics teachers and researchers. In the book, the authors cover a wide variety of special needs that learners of mathematics may have in inclusive settings. They present theoretical frameworks and methodological approaches for research and practice.

## **Large-Scale Studies in Mathematics Education**

Cognitive Foundations for Improving Mathematical Learning, Volume 5, the latest release in the Mathematical Cognition and Learning series, focuses on informal learning environments and other parental influences on numerical cognitive development and formal instructional interventions for improving mathematics learning and performance. Chapters cover the use of numerical play and games for improving foundational number knowledge, school math performance, the link between early math abilities and the approximate number system, and how families can help improve the early development of math skills. In addition, the book examines learning trajectories in early mathematics, the role of mathematical language in acquiring numeracy skills, evidence-based assessments of early math skills, approaches for intensifying early mathematics interventions, the use of analogies in mathematics instruction, schema-based diagrams for teaching ratios and proportions, the role of cognitive processes in treating mathematical learning difficulties, and more. Identifies the relative influence of school and family on math learning Discusses the efficacy of numerical play for improvement in math Features learning trajectories in math Examines the role of math language in numeracy skills Includes assessments of math skills Explores the role of cognition in treating math-based learning difficulties

## **Handbook of International Research in Mathematics Education**

Science Education: A Global Perspective is 'global' both in content and authorship. Its 17 chapters by an assemblage of seasoned and knowledgeable science educators from many parts of the world seek to bring to the fore current developments in science education and their implications. The book thus covers a wide range of topics in science education from various national and international perspectives. These include the nature of science, science and religion, evolution, curriculum and pedagogy, context-based teaching and learning, science and national development, socially-responsible science education, equitable access for women and girls in science and technology education, and the benefits of science education research. It ends on an optimistic note by looking at science education in 50 years' time with a recommendation, among others, for stakeholders to take the responsibility of preparing children towards a blossoming science education sector in an anticipated future world. This book is suitable for use by discerning researchers, teachers, undergraduate and postgraduate students in science education, and policy makers at all levels of education. Other educationalists and personnel in science and technology vocations will also find it interesting and useful as the reader-motivated approach has guided the presentation of ideas. Science Education: A Global Perspective is a rich compendium of the components of science education in context, practice, and delivery. Dr Bulent Cavas, Professor of Science Education, Dokuz Eylul University, Buca-Izmir, Turkey/President-Elect, International Council of Associations for Science Education (ICASE) This book will be of immense relevance for current and future global strides in training and research in science education. Surinder K. Ghai, Chairman, Sterling Publishers Pvt. Ltd., New Delhi, India This book provides a refreshing insight into the current status and future direction of science education. It will be very useful to researchers, those pursuing undergraduate and post-graduate courses in science education, and all other personnel involved in the policy and practice of science education. Dr. Bennoit Sossou, Director/Country Representative, UNESCO Regional Office in Abuja, Nigeria

## **Educational Psychology**

This book presents current perspectives on theoretical and empirical issues related to the teaching and learning of geometry at secondary schools. It contains chapters contributing to three main areas. A first set of chapters examines mathematical, epistemological, and curricular perspectives. A second set of chapters presents studies on geometry instruction and teacher knowledge, and a third set of chapters offers studies on

geometry thinking and learning. Specific research topics addressed also include teaching practice, learning trajectories, learning difficulties, technological resources, instructional design, assessments, textbook analyses, and teacher education in geometry. Geometry remains an essential and critical topic in school mathematics. As they learn geometry, students develop essential mathematical thinking and visualization skills and learn a language that helps them relate to and interact with the physical world. Geometry has traditionally been included as a subject of study in secondary mathematics curricula, but it has also featured as a resource in out-of-school problem solving, and has been connected to various human activities such as sports, games, and artwork. Furthermore, geometry often plays a role in teacher preparation, undergraduate mathematics, and at the workplace. New technologies, including dynamic geometry software, computer-assisted design software, and geometric positioning systems, have provided more resources for teachers to design environments and tasks in which students can learn and use geometry. In this context, research on the teaching and learning of geometry will continue to be a key element on the research agendas of mathematics educators, as researchers continue to look for ways to enhance student learning and to understand student thinking and teachers' decision making.

## **Inclusive Mathematics Education**

*Educational Practices in Germany: An Overview* discusses the Malaysian and German researchers' perspective on the educational practices in German schools. The foci of this book are on the education system, classroom management and teacher education, integration of ICT in classrooms, teaching and learning of science and mathematics at the secondary school level, influence of cultural aspects as well as extracurricular activities in German schools.

## **Cognitive Foundations for Improving Mathematical Learning**

This book offers fresh insight and understanding of the many ways in which children, youth and adults may find their paths to mathematics. The chapters of the volume offer and analyse promising new ways into mathematics. The focus is on spaces and modalities of learning, dialogue and inquiry, embodiment and aesthetic experience, information and communication technology and on the use of mathematics in public communication. The chapters present new mathematical activities and conceptions enriching the repertoire of mathematics education practices. Critical commentaries discuss the innovative potential of the new approaches to the teaching and learning of mathematics. As a consequence, the commentaries point to requirements and open issues in the field of research in mathematics education. The volume is remarkably international. Teachers and researchers from 14 countries authored 21 chapters and 7 commentaries. The reader is invited to reflect on the particular effect of presenting avenues to mathematics contrived in diverse national settings in which the praxis of mathematics education might look different compared to what happens in the reader's place. The book starts a series of sourcebooks edited by CIEAEM, the Commission Internationale pour l'Etude et l'Amélioration de l'Enseignement des Mathématiques / International Commission for the Study and Improvement of Mathematics Education.

## **Science Education: A Global Perspective**

This book is open access under a CC BY 4.0 license. The book presents the Proceedings of the 13th International Congress on Mathematical Education (ICME-13) and is based on the presentations given at the 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 brought together about 3.500 mathematics educators from 105 countries, additionally 250 teachers from German speaking countries met for specific activities. Directly before the congress activities were offered for 450 Early Career Researchers. The proceedings give a comprehensive overview on the current state-of-the-art of the discussions on mathematics education and display the breadth and deepness of current research on

mathematical teaching-and-learning processes. The book introduces the major activities of ICME-13, namely articles from the four plenary lecturers and two plenary panels, articles from the five ICMI awardees, reports from six national presentations, three reports from the thematic afternoon devoted to specific features of ICME-13. Furthermore, the proceedings contain descriptions of the 54 Topic Study Groups, which formed the heart of the congress and reports from 29 Discussion Groups and 31 Workshops. The additional important activities of ICME-13, namely papers from the invited lecturers, will be presented in the second volume of the proceedings.

## **International Perspectives on the Teaching and Learning of Geometry in Secondary Schools**

This edited volume brings forth intriguing, novel and innovative research in the field of science education. The chapters in the book deal with a wide variety of topics and research approaches, conducted in various contexts and settings, all adding a strong contribution to knowledge on science teaching and learning. The book is comprised of selected high-quality studies that were presented at the 11th European Science Education Research Association (ESERA) Conference, held in Helsinki, Finland from 31 August to 4 September, 2015. The ESERA science education research community consists of professionals with diverse disciplinary backgrounds from natural sciences to social sciences. This diversity provides a rich understanding of cognitive and affective aspects of science teaching and learning in this volume. The studies in this book will invoke discussion and ignite further interest in finding new ways of doing and researching science education for the future and looking for international partners for both science education and science education research. The twenty-five chapters showcase current orientations of research in science education and are of interest to science teachers, teacher educators and science education researchers around the world with a commitment to evidence-based and forward-looking science teaching and learning.

## **Educational Practices in Germany: An Overview**

Learning strategies for critical thinking are a vital part of today's curriculum as students have few additional opportunities to learn these skills outside of school environments. Therefore, it is of utmost importance for pre-service teachers to learn how to infuse critical thinking skill development in every academic subject to assist future students in developing these skills. The Handbook of Research on Critical Thinking Strategies in Pre-Service Learning Environments is a collection of innovative research on the methods and applications of critical thinking that highlights ways to effectively use critical thinking strategies and implement critical thinking skill development into courses. While highlighting topics including deep learning, metacognition, and discourse analysis, this book is ideally designed for educators, academicians, researchers, and students.

## **Educational Paths to Mathematics**

Building on the foundation set in Volume I—a landmark synthesis of research in the field—Volume II is a comprehensive, state-of-the-art new volume highlighting new and emerging research perspectives. The contributors, all experts in their research areas, represent the international and gender diversity in the science education research community. The volume is organized around six themes: theory and methods of science education research; science learning; culture, gender, and society and science learning; science teaching; curriculum and assessment in science; science teacher education. Each chapter presents an integrative review of the research on the topic it addresses—pulling together the existing research, working to understand the historical trends and patterns in that body of scholarship, describing how the issue is conceptualized within the literature, how methods and theories have shaped the outcomes of the research, and where the strengths, weaknesses, and gaps are in the literature. Providing guidance to science education faculty and graduate students and leading to new insights and directions for future research, the Handbook of Research on Science Education, Volume II is an essential resource for the entire science education community.

## **Proceedings of the 13th International Congress on Mathematical Education**

This Handbook explores the discourse within the field of educational leadership and management. It provides a clear analysis of the current field as well as older foundational ideas and newer concepts which are beginning to permeate the discussion. The field of educational leadership and management has long acknowledged that educational contexts include a variety of leaders beyond school principals and other school officials such as informal and middle level leaders. By looking at the knowledge dynamic rather than a static knowledge base, this Handbook allows research to be presented in its multidimensional, evolving reality.

## **Cognitive and Affective Aspects in Science Education Research**

Digital integration is the driving force of teaching and learning at all levels of education. As more non-traditional students seek credentialing, certification, and degrees, institutions continue to push the boundaries of innovative practices to meet the needs of diverse students. Programs and faculty have moved from merely using technology and learning management systems to unique and innovative ways to engage learners. The Handbook of Research on Innovative Digital Practices to Engage Learners is an essential scholarly publication that offers theoretical frameworks, delivery models, current guidelines, and digital design techniques for integrating technological advancements in education contexts to enforce student engagement and positive student outcomes. Featuring a wide range of topics such as gamification, wearable technologies, and distance education, this book is ideal for teachers, curriculum developers, instructional designers, principals, deans, administrators, researchers, academicians, education professionals, and students.

## **Handbook of Research on Critical Thinking Strategies in Pre-Service Learning Environments**

The challenge of overcoming educational inequality in the United States can sometimes appear overwhelming, and great controversy exists as to whether or not elementary schools are up to the task, whether they can ameliorate existing social inequalities and initiate opportunities for economic and civic flourishing for all children. This book shows what can happen when you rethink schools from the ground up with precisely these goals in mind, approaching educational inequality and its entrenched causes head on, student by student. Drawing on an in-depth study of real schools on the South Side of Chicago, Elizabeth McGhee Hassrick, Stephen W. Raudenbush, and Lisa Rosen argue that effectively meeting the challenge of educational inequality requires a complete reorganization of institutional structures as well as wholly new norms, values, and practices that are animated by a relentless commitment to student learning. They examine a model that pulls teachers out of their isolated classrooms and places them into collaborative environments where they can share their curricula, teaching methods, and assessments of student progress with a school-based network of peers, parents, and other professionals. Within this structure, teachers, school leaders, social workers, and parents collaborate to ensure that every child receives instruction tailored to his or her developing skills. Cooperating schools share new tools for assessment and instruction and become sites for the training of new teachers. Parents become respected partners, and expert practitioners work with researchers to evaluate their work and refine their models for educational organization and practice. The authors show not only what such a model looks like but the dramatic results it produces for student learning and achievement. The result is a fresh, deeply informed, and remarkably clear portrait of school reform that directly addresses the real problems of educational inequality.

## **Handbook of Research on Science Education**

Over the past several years, "spatial reasoning" has gained renewed prominence among mathematics educators, as spatial skills are proving to be not just essential to mathematical understanding but also strong predictors of future success beyond the classroom in fields such as science, technology, and engineering. By exploring both primary and emergent dimensions, Spatial Reasoning in the Early Years helps define the

concept of spatial reasoning and provides compelling evidence of the need for a clear focus within early education specifically. The authors review the research, look across current theories, and investigate implications for contemporary school mathematics pedagogy as they identify areas of inquiry necessary to bring a stronger spatial reasoning emphasis into the classroom. The book contains many classroom- or workshop-based vignettes, highlighting the complexity of spatial reasoning in educational practice, providing an in-depth analysis of spatial reasoning as it applies to classroom practice, and offering new ways of framing lessons to help young students hone their spatial reasoning abilities. The book concludes with a forward-looking agenda that contributes to developing a greater understanding of the role spatial reasoning plays in educational contexts and beyond. Supported by plentiful visual representations, *Spatial Reasoning in the Early Years* skillfully integrates the conceptual and the concrete, making this text a dynamic and accessible resource.

## **The Palgrave Handbook of Educational Leadership and Management Discourse**

The most comprehensive and correct syllabus coverage, with unrivalled guidance and support straight from the IB. This course book is completely comprehensive with over 600 pages and a free eBook, and was written with the IB so you can trust in an authoritative syllabus match. Fully addresses the new focus on the GDC.

## **Handbook of Research on Innovative Digital Practices to Engage Learners**

Trends in International Mathematics and Science Study (TIMSS) is one of the projects of the International Association for the Evaluation of Educational Achievement (IEA), located at Amsterdam, The Netherlands and Hamburg, Germany. IEA is an independent cooperative of national educational research institutions and governmental research agencies dedicated to improving education. TIMSS is conducted regularly for every four years to assess students' achievement in science and mathematics at both the fourth and eighth grades. The project is dedicated to providing participating countries with information to improve teaching and learning in science and mathematics. This book is written especially for the interest of undergraduate students, postgraduate students, and educators of science education who wish to know more about the contributing factors to Grade 8 students' science achievement in TIMSS. This book is also resourceful for individuals who are involved, directly or indirectly, in the administration and implementation of TIMSS at the national, state, district, and school levels. This book consists of seven chapters. The first chapter gives a brief introduction to TIMSS which includes the TIMSS curriculum model and TIMSS science assessment frameworks. The subsequent chapters compare the contribution of various factors, i.e., home environment support, school resources, school climate, teacher preparation, and classroom instructions on Malaysian and Singaporean Grade 8 students' science achievement in TIMSS 2011. Last but not least, recommendations on ways to improve Malaysian Grade 8 students' science achievement in the forthcoming TIMSS are suggested based on the experiences of the Singaporean education system.

## **Journal for Research in Mathematics Education**

The dominant narratives of US rurality within educational research and literature centers on the Appalachian and southern US perspectives. However, there is a need to add texture and expand the vision of rurality in US schools and education. *Expanding the Vision of Rurality in the US Educational System* provides readers, especially college and university faculty in pre-service education programs, with a better understanding of the rural students they teach and the rural communities where they will eventually teach. It also attempts to move the discourse beyond the deficit framework for understanding rural communities. Though the book does not ignore barriers in rural communities, it focuses on the strengths and opportunities available to rural educators without depending on the rural idyllic. Covering key topics such as diversity, belonging, and regional rurality, this premier reference source is ideal for administrators, policymakers, industry professionals, researchers, academicians, scholars, practitioners, instructors, and students.

## **The Ambitious Elementary School**

The application of holistic optimization methods in the tourism, travel, and hospitality industry has improved customer service and business strategies within the field. By utilizing new technologies and optimization techniques, it is becoming easier to troubleshoot problematic areas within the travel industry. The Handbook of Research on Holistic Optimization Techniques in the Hospitality, Tourism, and Travel Industry features innovative technologies being utilized in the management of hotels and tourist attractions. Highlighting empirical research on the optimization of the travel and hospitality industry through the use of algorithms and information technology, this book is a critical reference source for managers, decision makers, executives, tourists, agents, researchers, economists, and hotel staff members.

## **Spatial Reasoning in the Early Years**

This open access book, inspired by the ICME 13 topic study group “Affect, beliefs and identity in mathematics education”, presents the latest trends in research in the area. Following an introduction and a survey chapter providing a concise overview of the state-of-art in the field of mathematics-related affect, the book is divided into three main sections: motivation and values, engagement, and identity in mathematics education. Each section comprises several independent chapters based on original research, as well as a reflective commentary by an expert in the area. Collectively, the chapters present a rich methodological spectrum, from narrative analysis to structural equation modelling. In the final chapter, the editors look ahead to future directions in the area of mathematics-education-related affect. It is a timely resource for all those interested in the interaction between affect and mathematics education.

## **IB Mathematical Studies SL Course Book**

This edited volume presents a broad range of original practice-oriented research studies about tertiary mathematics education. These are based on current theoretical frameworks and on established and innovative empirical research methods. It provides a relevant overview of current research, along with being a valuable resource for researchers in tertiary mathematics education, including novices in the field. Its practice orientation research makes it attractive to university mathematics teachers interested in getting access to current ideas and results, including theory-based and empirically evaluated teaching and learning innovations. The content of the book is spread over 5 sections: The secondary-tertiary transition; University students' mathematical practices and mathematical inquiry; Research on teaching and curriculum design; University students' mathematical inquiry and Mathematics for non-specialists.

## **Contributing Factors to TIMSS 2011 Eighth Graders' Science Achievement: A Comparison between Malaysia and Singapore**

Traditional classrooms are fast becoming a minority in the education field. As technologies continue to develop as a pervasive aspect of modern society, educators must be trained to meet the demands and opportunities afforded by this technology-rich landscape. The Handbook of Research on Teacher Education in the Digital Age focuses on the needs of teachers as they redesign their curricula and lessons to incorporate new technological tools. Including theoretical frameworks, empirical research, and best practices, this book serves as a guide for researchers, educators, and faculty and professional developers of distance learning tools.

## **Expanding the Vision of Rurality in the US Educational System**

Considering the relevance of teachers' diagnostic competence for understanding students' thinking and providing effective learning opportunities, Macarena Larrain investigates the development of future primary school teachers' diagnostic competence in error situations already during initial teacher education. Using video vignettes of classroom situations and samples of students' work, the author focuses on fostering future



teachers' competence to identify students' errors, elaborate hypotheses about the causes of those errors and to design appropriate strategies for supporting students in overcoming their misconceptions. She also describes aspects of teachers' knowledge, beliefs and experience that are relevant for the competence and its development.

## **Handbook of Research on Holistic Optimization Techniques in the Hospitality, Tourism, and Travel Industry**

Schools wishing to introduce the IB diploma programme are faced with major investment in terms of time, effort and money in order to become authorised. This manual is a resource for schools already offering the diploma, as well as for prospective diploma schools.

## **Affect and Mathematics Education**

Digital games offer enormous potential for learning and engagement in mathematics ideas and processes. This volume offers multidisciplinary perspectives—of educators, cognitive scientists, psychologists and sociologists—on how digital games influence the social activities and mathematical ideas of learners/gamers. Contributing authors identify opportunities for broadening current understandings of how mathematical ideas are fostered (and embedded) within digital game environments. In particular, the volume advocates for new and different ways of thinking about mathematics in our digital age—proposing that these mathematical ideas and numeracy practices are distinct from new literacies or multiliteracies. The authors acknowledge that the promise of digital games has not always been realised/fulfilled. There is emerging, and considerable, evidence to suggest that traditional discipline boundaries restrict opportunities for mathematical learning. Throughout the book, what constitutes mathematics learnings and pedagogy is contested. Multidisciplinary viewpoints are used to describe and understand the potential of digital games for learning mathematics and identify current tensions within the field. Mathematics learning is defined as being about problem solving; engagement in mathematical ideas and processes; and social engagement. The artefact, which is the game, shapes the ways in which the gamers engage with the social activity of gaming. In parallel, the book (as a textual artefact) will be supported by Springer's online platform—allowing for video and digital communication (including links to relevant websites) to be used as supplementary material and establish a dynamic communication space.

## **Practice-Oriented Research in Tertiary Mathematics Education**

This book presents the best papers from the 2nd International Conference on Mathematical Research for Blockchain Economy (MARBLE) 2020, held in Vilamoura, Portugal. While most blockchain conferences and forums are dedicated to business applications, product development or Initial Coin Offering (ICO) launches, this conference focused on the mathematics behind blockchain to bridge the gap between practice and theory. Blockchain Technology has been considered as the most fundamental and revolutionising invention since the Internet. Every year, thousands of blockchain projects are launched and circulated in the market, and there is a tremendous wealth of blockchain applications, from finance to healthcare, education, media, logistics and more. However, due to theoretical and technical barriers, most of these applications are impractical for use in a real-world business context. The papers in this book reveal the challenges and limitations, such as scalability, latency, privacy and security, and showcase solutions and developments to overcome them.

## **Handbook of Research on Teacher Education in the Digital Age**

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.

## **Preservice Primary Teachers' Diagnostic Competences in Mathematics**

This edited book brings together for the first time an international collection of work focused on two important aspects of any young child's life – learning mathematics and starting primary or elementary school. The chapters take a variety of perspectives, and integrate these two components in sometimes explicit and sometimes more subtle ways. The key issues and themes explored in this book are: the mathematical and other strengths that all participants in the transition to school bring to this period of a child's life; the opportunities provided by transition to school for young children's mathematics learning; the importance of partnerships among adults, and among adults and children, for effective school transitions and mathematics learning and teaching; the critical impact of expectations on their mathematics learning as children start school; the importance of providing children with meaningful, challenging and relevant mathematical experiences throughout transition to school; the entitlement of children and educators to experience assessment and instructional pedagogies that match the strengths of the learners and the teachers; the importance for the aspirations of children, families, communities, educators and educational organisations to be recognised as legitimate and key determinants of actions, experiences and successes in both transition to school and mathematics learning; and the belief that young children are powerful mathematics learners who can demonstrate this power as they start school. In each chapter, authors reflect on their work in the area of mathematics and transition to school, place that work within the overall context of research in these fields, predict the trajectory of this work in the future, and consider the implications of the work both theoretically and practically.

## **Introducing the IB Diploma Programme**

This book is written by a diverse cohort of American educators, including professors, teachers, and school administrators from pre-K to college levels. They come from disciplinary areas of child development, special education, English as a second language, counseling, technology, school administration, educational psychology, educational measurement and testing, as well as mathematics education. The chapters explore various topics, ranging from standardized testing, roles of central office, teacher evaluation, teacher professional development, gender differences, diversity, student engagement and parental involvement, student services provided at school, use of technology with teacher and students' perspectives of technology use, self-efficacy beliefs, to teacher's perspectives of play in early childhood settings. While the chapters reflect diverse conceptual and theoretical orientation, disciplinary focus, methodological emphasis, writing styles, and educational implications, they add together to present a more holistic picture of Chinese education across disciplinary areas. Taken together, these chapters reveal salient similarities and differences in theoretical underpinnings, pedagogical principles and classroom practices in China and in the United States. They also shed light on some of the larger conceptual/theoretical orientations between learning and learners in the two countries. They debunk some common misconceptions of education in the two countries as well. Since many chapters are written by American authors that reflect directly on their study abroad experiences in China, this allows fresh insight that helps to transform the view that these countries learning from one another would be a challenge into the realization that learning from one another is not only invaluable but also essential.

## **Digital Games and Mathematics Learning**

Hands On, Minds On describes the importance of children's foundational cognitive skills for academic achievement in literacy and mathematics, as well as their connections with other areas of school readiness, including physical health and social and emotional development. It also examines the growing evidence in favor of guided object play.

## **Mathematical Research for Blockchain Economy**

Mathematics and Multi-Ethnic Students

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