Sustainable Development Teaching During the last decade, a revaluation of proof and proving within mathematics curricula was recommended; great emphasis was put on the need of developing proof-related skills since the beginning of primary school. This book, addressing mathematics educators, teacher-trainers and teachers, is published as a contribution to the
endeavour of renewing the teaching of proof (and theorems) on the basis of historical-
epistemological, cognitive and didactical considerations. Authors come from eight countries and
different research traditions: this fact offers a broad scientific and cultural perspective. In this
book, the historical and epistemological dimensions are dealt with by authors who look at specific
research results in the history and epistemology of mathematics with an eye to crucial issues
related to educational choices. Two papers deal with the relationships between curriculum choices
concerning proof (and the related implicit or explicit epistemological assumptions and historical
traditions) in two different school systems, and the teaching and learning of proof there. The
cognitive dimension is important in order to avoid that the didactical choices do not fit the needs
and the potentialities of learners. Our choice was to firstly deal with the features of reasoning
related to proof, mainly concerning the relationships between argumentation and proof. The
second part of this book concentrates on some crucial cognitive and didactical aspects of the
development of proof from the early approach in primary school, to high school and university. We
will show how suitable didactical proposals within appropriate educational contexts can match the
great (yet, underestimated!) young students' potentialities in approaching theorems and theories.

Research in Science Education — Past, Present, and Future The advancement of a scientific
discipline depends not only on the "big heroes" of a discipline, but also on a community’s ability to
reflect on what has been done in the past and what should be done in the future. This volume
combines perspectives on both. It celebrates the merits of Michael Otte as one of the most
important founding fathers of mathematics education by bringing together all the new and
fascinating perspectives created through his career as a bridge builder in the field of
interdisciplinary research and cooperation. The perspectives elaborated here are for the greatest
part motivated by the impressing variety of Otte’s thoughts; however, the idea is not to look back,
but to find out where the research agenda might lead us in the future. This volume provides new
sources of knowledge based on Michael Otte’s fundamental insight that understanding the
problems of mathematics education - how to teach, how to learn, how to communicate, how to do,
and how to represent mathematics - depends on means, mainly philosophical and semiotic, that
have to be created first of all, and to be reflected from the perspectives of a multitude of diverse
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Handbook of International Research in Mathematics Education This handbook introduces concepts, ideas and methods of sustainability research based on real examples. It is divided into four sections. One part deals with theoretical aspects of sustainability and refers to theoretical approaches to sustainability research. Another section elaborates on more practical approaches to sustainability research, offering views and perspectives from various researchers, illustrating how regulations, laws and political frameworks influence sustainability. A third part treats education for sustainability and presents research and practical projects, showcasing how sustainability research may focus in formal and non-formal education. The final section draws some conclusions based on the body of experiences and knowledge gathered by the authors. This handbook will be of great use to educators, scientists, researchers, politicians, environment activists, teachers and others interested in sustainability and in the implementation of results of sustainability research.

Beyond the Canon This series relates past thought from the history of Western theological traditions to areas of contemporary concern in fresh, innovative, and constructive ways. Designed for those with no formal theological training, these student-friendly volumes guide readers through core theological issues in a systematic and accessible way. Leading contemporary Reformed theologians from around the world provide here a unique summary of the range and wealth of Reformed theology today and explore its potential for the future. These thirty-one essays consider the task of Reformed theology in the modern world, give Reformed perspectives on key theological themes, and suggest fruitful present-day trajectories of Reformed thought from the past.

To be Or Not to Be? Is that the Question? And Other Studies in Ontology, Epistemology and Logic This volume may be of interest for all those who wish that philosophy had a scientific character. As an adherent of the Polish Lvov-Warsaw Philosophical School, the author of this collection of papers endeavours to clarify some basic notions of epistemology, ontology and psychology of cognitive acts, such as judgment, existence, being etc. In his investigations he refrains from unnecessary
rejection of common-sense knowledge but at the same time searches for suitable patterns in contemporary sciences. Regarding formal logic as a fundamental tool for the precise expression and justification of thoughts, the author tries to clear logic from ontological commitments, shows how to construct logic of norms and how to use safely different definitions in research works. The book presents a new conception of antinomies and an innovatory approach to realistic epistemology. Moreover, some applications of logical methods are illustrated by examples of semantical analyses of the general notion of similarity and the biological concept of homology.

International Perspectives on Knowledge and Curriculum Chapter 7: Narrative and representation -- Chapter 8: History is historiography -- Conclusion -- Guide to key reading -- Bibliography -- Index

Crossing the Border of the Traditional Science Curriculum The book provides strong evidence that research on the cognitive processes from arithmetic thought to algebraic thought should take into consideration the socio-cultural context. It is an important contribution to the literature on linguistic structure in comparative studies related to Chinese student mathematics learning. This book not only makes a great contribution to research in mathematics education, the findings of this study also addressed insightful approaches and thoughts of understanding the development of algebraic thinking in cultural contexts for classroom teachers. Using written Chinese language from different theoretical references provided wonderful approaches for understanding student algebra cognitive development in a different way and calls educators for to pay special attention to an epistemological and linguistic view of algebraic development. The findings inform classroom teachers that the cultural context plays an important role in student learning mathematics. A typical analysis of the cognitive dimension involved in some in the historical and cultural contexts is a great resource for classroom teachers. I really enjoyed reading this book and learned a lot from its compelling analysis. Shuhua An, Associate Professor and Director of Graduate Program in Mathematics Education, California State University, Long Beach

Advances in Mathematics Education Research on Proof and Proving This book rethinks the
relations between reasoning and revelation and, therefore, the nature of philosophy and religion in archaic Greece.

The Path to Post-Galilean Epistemology This book offers a comprehensive overview of research at interface between History, Philosophy and Sociology of Science (HPSS) and Science Teaching in Ibero-America. It contributes to research on contextualization of science for students, teachers and researchers, and explains how to use different episodes of history of science or different themes of philosophy of science in regular science classes through diverse pedagogical approaches. The chapters in this book discuss a wide range of topics under different methodological, epistemological and didactic approaches, reflecting the richness of research developed in Spanish and Portuguese speaking countries, Latin America, Spain and Portugal. The book contains chapters about historical events, topics of philosophy and sociology of science, nature of science, applications of HPSS in the classroom, instructional materials for students and teacher training courses and curriculum.

Classical Antiquity in Video Games The aim of this book is to support and inspire teachers to contribute to much-needed processes of sustainable development and to develop teaching practices and professional identities that allow them to cope with the specificity of sustainability issues and, in particular, with the teaching challenges related to the ethical and political dimension of environmental and sustainability education. Bringing together recent scholarship on the topic, this book translates state-of-the-art academic research into teaching models, methods and tools. Starting with an outline of the challenge of sustainability, it offers insights and models for understanding the interesting yet ambiguous concept of ‘sustainable development’ and the complex process of transforming society in a more sustainable direction (Part I). It then goes on to provide a guide to preparing courses and lessons as well as tools for reflection about teaching practices and the multiplicity of approaches to addressing ethical and political challenges in sustainable development teaching (Part II). Finally, the book offers useful conceptual frameworks, models and typologies about the concrete design and implementation of sustainable development teaching (Part III). This book will be essential reading for students of education, as well as
Perspectives on School Algebra

Recent developments in the field of archaeology are not only progressing archaeological fieldwork but also changing the way we practise and present archaeology today. As these digital technologies are being used more and more every day on excavations or in museums, this also means that we must change the way we approach teaching and communicating archaeology as a discipline. The communication of archaeology is an often neglected but ever more important part of the profession. Instead of traditional lectures and museum displays, we can interact with the past in various ways. Students of archaeology today need to learn and understand these technologies, but can on the other hand also profit from them in creative ways of teaching and learning. The same holds true for visitors to a museum. This volume presents the outcome of a two-day international symposium on digital methods in teaching and learning in archaeology held at the University of Cologne in October 2018 addressing exactly this topic. Specialists from around the world share their views on the newest developments in the field of archaeology and the way we teach these with the help of archaeogaming, augmented and virtual reality, 3D reconstruction and many more. Thirteen chapters cover different approaches to teaching and learning archaeology in universities and museums and offer insights into modern-day ways to communicate the past in a digital age.

Routledge International Companion to Education

This state-of-the-art Handbook brings together important mathematics education research that makes a difference in both theory and practice—research that: anticipates problems and needed knowledge before they become impediments to progress; interprets future-oriented problems into researchable issues; presents the implications of research and theory development in forms that are useful to practitioners and policymakers; and facilitates the development of research communities to focus on neglected priorities or strategic opportunities. The volume represents a genuine attempt by contributors from around the world to advance the discipline, rather than simply review what has been done and what exists. The Handbook was developed in response to a number of major global catalysts for change, including the impact of national and international mathematics comparative assessment.
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studies; the social, cultural, economic, and political influences on mathematics education and research; the influence of progressively sophisticated and available technology; and the increasing globalization of mathematics education and research. From these catalysts have emerged specific priority themes and issues for mathematics education research in the 21st century. Three key themes were identified for attention in this volume: life-long democratic access to powerful mathematical ideas; advances in research methodologies; and influences of advanced technologies. Each of these themes is examined in terms of learners, teachers, and learning contexts, with theory development as an important component of all these aspects. Dynamic and forward looking, the Handbook of International Research in Mathematics Education is distinguished by its focus on new and emerging theoretical models, perspectives, and research methodologies; its uniformly high standard of scholarship; and its emphasis on the international nature of mathematics education research. It is an essential volume for all researchers, professionals, and students interested in mathematics education research in particular and, more generally, in international developments and future directions in the broad field of educational research.

Mortal and Divine in Early Greek Epistemology Golden Age departures in historiography and theory of history in some ways prepared the ground for modern historical methods and ideas about historical factuality. At the same time, they fed into the period’s own "aesthetic-historical culture" which amalgamated fact and fiction in ways modern historians would consider counterfactual: a culture where imaginative historical prose, poetry and drama self-consciously rivalled the accounts of royal chroniclers and the dispatches of diplomatic envoys; a culture dominated by a notion of truth in which skilful construction of the argument and exemplarity took precedence over factual accuracy. Literature and Historiography in the Spanish Golden Age: The Poetics of History investigates this grey area backdrop of modern ideas about history, delving into a variety of Golden Age aesthetic-historical works which cannot be satisfactorily described as either works of literature or works of historiography but which belong in between these later strictly separate categories.

Evaluating Teaching Practices in Graduate Programs This book casts new light on the process that
in the sixteenth and seventeenth centuries led to a profound transformation in the study of nature with the emergence of mechanistic philosophy, the new mixed mathematics, and the establishment of the experimental approach. It is argued that modern European science originated from Hellenistic mathematics not so much because of rediscovery of the latter but rather because its “applied” components, namely mechanics, optics, harmonics, and astronomy, and their methodologies continued to be transmitted throughout the Middle Ages without serious interruption. Furthermore, it is proposed that these “applied” components played a role in their entirety; thus, for example, “new” mechanics derived not only from “old” mechanics but also from harmonics, optics, and astronomy. Unlike other texts on the subject, the role of mathematicians is stressed over that of philosophers of nature and the focus is particularly on epistemological aspects. In exploring Galilean and post-Galilean epistemology, attention is paid to the contributions of Galileo’s disciples and also the impact of his enemies. The book will appeal to both historians of science and scientists.

The New History “As richly described in the various chapters of this book, we see that clinics can act as a window to the functioning of law and the legal system. Clinics allow students and faculty to see how laws and the legal system are functioning for groups of people who otherwise likely would not be a part of the common experience of professors and their students: poor people generally, migrants and refugees, women and children exploited by trafficking, people with disabilities, ethnic minorities, prisoners, and so on. Legal systems the world over tend to give less care and attention to the problems of the poor and other disempowered groups, and such people usually lack access to well-educated legal advocates to help them fight to make the legal system work for them. Through clinic cases, students and faculty see the day-to-day lives of people marginalized by the society, see how the law affects and influences their lives, and see how it serves or fails to serve them. For law professors involved in clinical education, such as the authors of this book, heightened awareness of the law’s operation for poor people adds another important perspective to the subjects of their research and work as commentators on the law. Students can also be inspired to select topics for research papers, master or PhD theses by exposure to problems in the law and legal system as it functions for their clients.” (Dall’introduzione)
Making Histories

Natural History in Early Modern France This book, addressing mathematics educators, teacher-trainers and teachers, is published as a contribution to the endeavour of renewing the teaching of proof (and theorems) on the basis of historical-epistemological, cognitive and didactical considerations.

Semiotics in Mathematics Education From gaming consoles to smartphones, video games are everywhere today, including those set in historical times and particularly in the ancient world. This volume explores the varied depictions of the ancient world in video games and demonstrates the potential challenges of games for scholars as well as the applications of game engines for educational and academic purposes. With successful series such as “Assassin's Creed” or “Civilization” selling millions of copies, video games rival even television and cinema in their role in shaping younger audiences' perceptions of the past. Yet classical scholarship, though embracing other popular media as areas of research, has so far largely ignored video games as a vehicle of classical reception. This collection of essays fills this gap with a dedicated study of receptions, remediations and representations of Classical Antiquity across all electronic gaming platforms and genres. It presents cutting-edge research in classics and classical receptions, game studies and archaeogaming, adopting different perspectives and combining papers from scholars, gamers, game developers and historical consultants. In doing so, it delivers the first state-of-the-art account of both the wide array of 'ancient' video games, as well as the challenges and rewards of this new and exciting field.

Epistemic Communities at the Boundaries of Law Drawing on the idea of powerful knowledge, this book interrogates the epistemic quality of education in schools, in terms of what students are expected to know, make sense of and be able to do through the curriculum. In doing so the authors acknowledge the significance of transformation processes through which specialized knowledge, developed in subject disciplines, is reshaped and re-presented in educational environments. Moving beyond the narrow knowledge vs skills debate of the 20th century, the authors look at how
we might democratise and open up access to 'knowledge of the powerful' for all through the school curriculum. Arising from the work of the Knowledge and Quality across School Subjects and Teacher Education network (KOSS), funded by the Swedish Research Council (2019-22), this book draws on studies conducted in a range of national contexts, including from Finland, France, Germany, Norway, Sweden and the UK, and considers the implications for curriculum innovation at policy, programmatic and classroom level.

Thinking with Cases The development of literature in Canada with an eye to its multicultural, multiethnic, multilingual nature.

Proceedings If historical culture is the specific and particular ways that a society engages with its past, this book aims to situate the professional practice of public history, now emerging across the world, within that framework. It links the increasingly varied practices of memory and history-making such as genealogy, podcasting, re-enactment, family histories, memoir writing, film-making and facebook histories with the work that professional historians do, both in and out of the academy. Making Histories asks questions about the role of the expert and notions of authority within a landscape that is increasingly concerned with connection to the past and authenticity. The book is divided into four parts: 1. Resistance, Rights, Authority 2. Memory, Memorialization, Commemoration 3. Performance, Transmission, Reception 4. Family, Private, Self The four sections outline major themes emerging in public history across the world in the 21st century which are all underpinned by the impact of new media on historical practice and our central argument for the volume which advocates a more capacious definition of what constitutes ‘public history’.

What Is History For? This ground-breaking book investigates how the learning and teaching of mathematics can be improved through integrating the history of mathematics into all aspects of mathematics education: lessons, homework, texts, lectures, projects, assessment, and curricula. It draws upon evidence from the experience of teachers as well as national curricula, textbooks, teacher education practices, and research perspectives across the world. It includes a 300-item annotated bibliography of recent work in the field in eight languages.
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Teaching Science with Context The utilization of media has proven to be a beneficial instructional method in learning environments. These tools are particularly useful for teacher training, promoting better reflection on current practices. Integrating Video into Pre-Service and In-Service Teaching Training provides a comprehensive overview on the application of class video recordings to encourage self-observation of personal teaching methods and improve everyday classroom habits. Highlighting concepts relating to professionalism, didactics, and technological techniques, this book is a pivotal reference source for researchers, educators, practitioners, and students

History of Literature in Canada This book proposes a method to evaluate the work of teachers acting in a very specific educational context: graduate programs at higher education institutions. There are many publications on the field of measurement and evaluation of teaching practices, but these studies are usually conducted at the undergraduate level and ignore the nuances of teaching practices at the graduate level. Should professors demonstrate the same skills when they teach in undergraduate programs as they do when they teach in graduate programs? Is it appropriate to use the same assessment tools both at the undergraduate and the graduate levels? Do the teaching practices evolve the same way at the graduate and undergraduate levels? The book intends to answer these questions by introducing a methodological approach to find the relevant variables that are the foundation of professional practices at the graduate level as determined by the scientific community and through the analysis of the stakeholders’ perceptions. The proposed methodological approach combines quantitative and qualitative research techniques to identify and explain, within a mixed-method framework, the most important factors that lead to teaching quality at graduate level. Therefore, How to Evaluate Teaching Practices in Graduate Practices will be a valuable resource for students, university professors and educational administrators interested in quality assurance processes in higher education institutions.

Toward the Future of Reformed Theology

Textbooks and Educational Media: Perspectives from Subject Education ALAN J. BISHOP Monash University, Clayton, Victoria, Australia RATIONALE Mathematics Education is becoming a well-
documented field with many books, journals and international conferences focusing on a variety of aspects relating to theory, research and practice. That documentation also reflects the fact that the field has expanded enormously in the last twenty years. At the 8th International Congress on Mathematics Education (ICME) in Seville, Spain, for example, there were 26 specialist Working Groups and 26 special ist Topic Groups, as well as a host of other group activities. In 1950 the 'Commission Internationale pour l'Etude et l'Amelioration de l'Enseignement des Mathematiques' (CIEAEM) was formed and twenty years ago another active group, the 'International Group for the Psychology of Mathematics Education' (PME), began at the third ICME at Karlsruhe in 1976. Since then several other specialist groups have been formed, and are also active through regular conferences and publications, as documented in Edward Jacobsen's Chapter 34 in this volume.

European and Chinese Cognitive Styles and their Impact on Teaching Mathematics Didactics of Mathematics as a Scientific Discipline describes the state of the art in a new branch of science. Starting from a general perspective on the didactics of mathematics, the 30 original contributions to the book, drawn from 10 different countries, go on to identify certain subdisciplines and suggest an overall structure or 'topology' of the field. The book is divided into eight sections: (1) Preparing Mathematics for Students; (2) Teacher Education and Research on Teaching; (3) Interaction in the Classroom; (4) Technology and Mathematics Education; (5) Psychology of Mathematical Thinking; (6) Differential Didactics; (7) History and Epistemology of Mathematics and Mathematics Education; (8) Cultural Framing of Teaching and Learning Mathematics. Didactics of Mathematics as a Scientific Discipline is required reading for all researchers into the didactics of mathematics, and contains surveys and a variety of stimulating reflections which make it extremely useful for mathematics educators and teacher trainers interested in the theory of their practice. Future and practising teachers of mathematics will find much to interest them in relation to their daily work, especially as it relates to the teaching of different age groups and ability ranges. The book is also recommended to researchers in neighbouring disciplines, such as mathematics itself, general education, educational psychology and cognitive science.

Theorems in School This truly international volume includes a selection of contributions to the
Second Conference of the European Science Education Research Association (Kiel, Sept. 1999). It provides a state-of-the-art examination of science education research in Europe, discusses views and visions of science education research, deals with research on scientific literacy, on students' and teachers' conceptions, on conceptual change, and on instructional media and lab work.

Integrating Video into Pre-Service and In-Service Teacher Training A scholar of Hellenistic and Prussian history, Droysen developed a historical theory that at the time was unprecedented in range and depth, and which remains to the present day a valuable key for understanding history as both an idea and a professional practice. Arthur Alfaix Assis interprets Droysen's theoretical project as an attempt to redefine the function of historiography within the context of a rising criticism of exemplar theories of history, and focuses on Droysen's claim that the goal underlying historical writing and reading should be the development of the subjective capacity to think historically. In addition, Assis examines the connections and disconnections between Droysen's theory of historical thinking, his practice of historical thought, and his political activism. Ultimately, Assis not only shows how Droysen helped reinvent the relationship between historical knowledge and human agency, but also traces some of the contradictions and limitations inherent to that project.

Handbook of Sustainability Research This open access book discusses several didactic traditions in mathematics education in countries across Europe, including France, the Netherlands, Italy, Germany, the Czech and Slovakian Republics, and the Scandinavian states. It shows that while they all share common features both in the practice of learning and teaching at school and in research and development, they each have special features due to specific historical and cultural developments. The book also presents interesting historical facts about these didactic traditions, the theories and examples developed in these countries.

Activity and Sign 'Beyond the Canon' deals with recent politicized processes of canonization and its implications for historical culture in a globalizing and postcolonial world. The volume discusses the framing and transmission of historical knowledge and its consequences for the construction of
narratives and the teaching of history in multicultural environments.

History in Mathematics Education The Routledge International Companion to Education addresses the key issues underpinning the rethinking and restructuring of education at the beginning of the new millennium. The volume contains over fifty major contributions exploring a wide range of issues, including: * philosophy of education * the economics and resourcing of education * testing and assessment: current issues and future prospects * standards * multiculturalism * anti-racism * computers in classrooms * mother tongue education * civics and moral education. Each chapter gives a contemporary account of developments in the field, and looks to the future and the directions that new activity and inquiry are likely to take. All the chapters are written from an international perspective.

Theorems in School Garrod, Smith and the contributors of the volume envisage the longue durée poetics of an early modern genre. They interpret its poetics alongside its various epistemic agenda and make a case for the literary status of natural history.

Lexicon Grammaticorum This book brings together empirical research and conceptual work on textbooks and education media from 13 countries and 17 disciplines. Along with textbook production, usage, and development, it also explores the interconnectedness of (educational) policy and teaching and learning materials. Further, the book offers insights into regional and local discourses (e.g. specific theories of Portuguese- and Spanish-speaking countries as well as Nordic countries, contrasting their theories with international literature), practices, and solutions with regard to teaching selected subjects at the pre-primary, primary, secondary, and tertiary level. This book also discusses the specific combinations of subjects (e.g. Physics, Biology, Geography, Swedish, English) and their subject-specific education (e.g. Physics Education or Didactics). Lastly, it examines the work of a number of early-career researchers, giving them a voice and bringing in fresh ideas currently being developed in various countries around the globe. This proceedings volume will appeal to publishers, subject educators in primary, secondary, and tertiary education, and academic researchers from the fields of textbooks, educational media and subject-specific
education. Its international authorship and explicit focus on subject-specific particularities of educational media provide a unique and comprehensive overview.

International Handbook of Mathematics Education Current interest in semiotics is undoubtedly related to our increasing awareness that our manners of thinking and acting in our world are deeply indebted to a variety of signs and sign systems (language included) that surround us.

Advances in the Anthropological Theory of the Didactic Lexicon Grammaticorum is a biographical and bibliographical reference work on the history of all the world’s traditions of linguistics. Each article consists of a short definition, details of the life, work and influence of the subject and a primary and secondary bibliography. The authors include some of the most renowned linguistic scholars alive today. For the second edition, twenty co-editors were commissioned to propose articles and authors for their areas of expertise. Thus this edition contains some 500 new articles by more than 400 authors from 25 countries in addition to the completely revised 1,500 articles from the first edition. Attention has been paid to making the articles more reader-friendly, in particular by resolving abbreviations in the textual sections. Key features: essential reference book for linguists worldwide 500 new articles over 400 contributors of 25 countries

European Traditions in Didactics of Mathematics This book explores new trends and developments in mathematics education research related to proof and proving, the implications of these trends and developments for theory and practice, and directions for future research. With contributions from researchers working in twelve different countries, the book brings also an international perspective to the discussion and debate of the state of the art in this important area. The book is organized around the following four themes, which reflect the breadth of issues addressed in the book: • Theme 1: Epistemological issues related to proof and proving; • Theme 2: Classroom-based issues related to proof and proving; • Theme 3: Cognitive and curricular issues related to proof and proving; and • Theme 4: Issues related to the use of examples in proof and proving. Under each theme there are four main chapters and a concluding chapter offering a commentary on the theme overall.
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Literature and Historiography in the Spanish Golden Age This book confronts the issue of how young people can find a way into the world of algebra. It represents multiple perspectives which include an analysis of situations in which algebra is an efficient problem-solving tool, the use of computer-based technologies, and a consideration of the historical evolution of algebra. The book emphasizes the situated nature of algebraic activity as opposed to being concerned with identifying students' conceptions in isolation from problem-solving activity.

Communicating the Past in the Digital Age Nations worldwide consider education an important tool for economic and social development, and the use of innovative strategies to prepare students for the acquisition of knowledge and skills is currently considered the most effective strategy for nurturing engaged, informed learners. In the last decade especially, European countries have promoted a series of revisions to their curricula and in the ways teachers are trained to put these into practice. Updating curriculum contents, pedagogical facilities (for example, computers in schools), and teaching and learning strategies should be seen as a routine task, since social and pedagogical needs change over time. Nevertheless, educational institutions and actors (educational departments, schools, teachers, and even students) normally tend to be committed to traditional practices. As a result of this resistance to change within educational systems, implementing educational innovation is a big challenge. The authors of the present volume have been involved with curriculum development since 2003. This work is an opportunity to present the results of more than a decade of research into experimental, inventive approaches to science education. Most chapters concern innovative strategies for the teaching and learning of new contents, as well as methods for learning to teach them at the pre-university school level. The research is focused on understanding the pedagogical issues around the process of innovation, and the findings are grounded in analyses of the limits and possibilities of teachers’ and students’ practices in schools.

Didactics of Mathematics as a Scientific Discipline Case studies fascinate because they link individual instances to general patterns and knowledge to action without denying the priority of individual situations over the generalizations derived from them. In this volume, an international
group of senior scholars comes together to consider the use of cases to produce empirical knowledge in premodern China. They trace the process by which the project of thinking with cases acquired a systematic and public character in the ninth century CE and after. Premodern Chinese experts on medicine and law circulated printed case collections to demonstrate efficacy or claim validity for their judgments. They were joined by authors of religious and philosophical texts. The rhetorical strategies and forms of argument used by all of these writers were allied with historical narratives, exemplary biographies, and case examples composed as aids to imperial statecraft. The innovative and productive explorations gathered here present a coherent set of interlocking arguments that will be of interest to comparativists as well as specialists on premodern East Asia. For China scholars, they examine the interaction of different fields of learning in the late imperial period, the relationship of evidential reasoning and literary forms, and the philosophical frameworks that linked knowledge to experience and action. For comparativists, the essays bring China into a global conversation about the methodologies of the human sciences. Contributors: Chu Honglam, Charlotte Furth, Hsiung Ping-chen, Jiang Yonglin, Yasuhiko Karasawa, Robert Sharf, Pierre-Étienne Will, WuYanhong, Judith T. Zeitlin.