

# Speaking Mathematically

Communication in  
Mathematics Classrooms



David Pimm

# Speaking Mathematically Communications In Mathematics Classrooms

**Portia C. Elliott, Cynthia M. Elliott  
Garnett**



## **Speaking Mathematically Communications In Mathematics Classrooms:**

Speaking Mathematically David Pimm, 1987 This stimulating study focuses on mathematics as a language with its own rules and conventions and explores the implications of this for classroom practice **Routledge Revivals: Speaking Mathematically (1987)** David Pimm, 2019-01-15 First published in 1987 this book examines mathematics school teaching from the perspective that it is a language arguing that this can illuminate many events that occur in classes and highlight issues that may not have previously seemed important The central concern is with the processes of communication as they are shaped by school conventions and the fact that it is mathematics being discussed Speaking listening writing and reading are examined and analysed with the first half focusing on verbal interactions and the second half examining aspects of pupil written mathematics Also explored is the nature of the mathematical writing system itself and how pupils gain access to it

**Routledge Revivals: Speaking Mathematically (1987)** David Pimm, 2019-01-15 First published in 1987 this book examines mathematics school teaching from the perspective that it is a language arguing that this can illuminate many events that occur in classes and highlight issues that may not have previously seemed important The central concern is with the processes of communication as they are shaped by school conventions and the fact that it is mathematics being discussed Speaking listening writing and reading are examined and analysed with the first half focusing on verbal interactions and the second half examining aspects of pupil written mathematics Also explored is the nature of the mathematical writing system itself and how pupils gain access to it *Challenging Perspectives on Mathematics Classroom Communication* Anna Chronaki, Iben Maj Christiansen, 2004-11-01 This book features ten articles exploring classroom communication emphasizing both interactions among participants and the underlying politics values and ideologies They discuss how communication involves register representation and contexts through media human interfaces and how it transforms mathematics teaching

Communication in Mathematics, K-12 and Beyond Portia C. Elliott, 1996 This book contains ideas for teachers facing the challenges of turning their classrooms and schools into discourse communities The yearbook is divided into four sections Part 1 chapters 1 3 sets the stage by considering the challenges inherent in shifting directions of discourse Part 2 chapters 4 21 focuses on establishing discourse communities within the classroom Part 3 chapters 22 25 moves the discourse discussion outside the K 12 arena Finally Part 4 chapters 26 28 focuses on the role of language in mathematics discourse Chapters include 1 Communication An Imperative for Change A Conversation with Mary Lindquist M M Lindquist 2 Diverse Communications D Pimm 3 Building Discourse Communities in Mathematics Classrooms A Worthwhile but Challenging Journey E A Silver 4 Meaningful Communication among Children Data Collection S Folkson 5 The Link Sheet A Communication Aid for Clarifying and Developing Mathematical Ideas and Processes M Shield 6 Using Multiple Representations to Communicate An Algebra Challenge L P McCoy T H Baker 7 Algebraic Thinking Language and Word Problems W W Esty 8 Communicating the Mathematics in Children s Trade Books Using Mathematical Annotations P A

Halpern 9 Fostering Metaphorical Thinking through Children's Literature D J Whitin 10 Using Reading to Construct Mathematical Meaning M Siegel R Borasi J M Fonzi L G Sanridge 11 Communicating Mathematics through Literature R Narode 12 Talk Your Way into Writing D Huinker 13 Try a Little of the Write Stuff P A House 14 Developing and Assessing Mathematical Understanding in Calculus through Writing J O Masingila 15 Is Anybody Listening S E B Pirie 16 Developing Problem Solving Behaviors by Assessing Communication in Cooperative Learning Groups A F Artzt 17 Using Technology to Enhance Communication in Mathematics A E Barron 18 The Role of Open Ended Tasks and Holistic Scoring Rubrics Assessing Students Mathematical Reasoning and Communication J Cai S Lane 19 Mathematical Communication in Students Responses to a Performance Assessment Task D Peressini 20 Communication Processes in Mathematical Explorations and Investigations C Greenes 21 Embedding Communication throughout the Curriculum H L Schoen D L Bean 22 Children Teach Your Parents Well Communication in Mathematics between Home and School A Hart M Smyth K Vetter 23 Communicating about Alternative Assessment Beyond the Mathematics Classroom P A Kenney C G Schloemer 24 Mathematics Pen Pal Letter Writing E Phillips 25 Developing Preservice Teachers Strategies for Communicating in and about Mathematics F R Curcio S L Schwartz 26 Strategies to Support the Learning of the Language of Mathematics R N Rubenstein 27 Communication in Mathematics for Students with Limited English Proficiency R A Olivares and 28 Mathematics as a Language Z Usiskin MKR

### **The Construction of New Mathematical Knowledge in Classroom Interaction** Heinz Steinbring, 2006-03-30

Mathematics is generally considered as the only science where knowledge is uniform universal and free from contradictions Mathematics is a social product a net of norms as Wittgenstein writes In contrast to other institutions traffic rules legal systems or table manners which are often internally contradictory and are hardly ever unrestrictedly accepted mathematics is distinguished by coherence and consensus Although mathematics is presumably the discipline which is the most differentiated internally the corpus of mathematical knowledge constitutes a coherent whole The consistency of mathematics cannot be proved yet so far no contradictions were found that would question the uniformity of mathematics Heintz 2000 p 11 The coherence of mathematical knowledge is closely related to the kind of professional communication that research mathematicians hold about mathematical knowledge In an extensive study Bettina Heintz Heintz 2000 proposed that the historical development of formal mathematical proof was in fact a means of establishing a communicable code of conduct which helped mathematicians make themselves understood in relation to the truth of mathematical statements in a coordinated and unequivocal way *Language and Communication in the Mathematics Classroom* Heinz Steinbring, Maria Giuseppina Bartolini Bussi, Anna Sierpinska, 1998 The way in which teachers communicate with their students partly determines what they communicate This book addresses the communication issue by building on a series of papers whose first versions were presented in 1992 at the Sixth International Congress of Mathematics Education in Quebec Papers include 1 Crossing the Gulf between Thought and Symbol Language as Slippery Stepping Stones Susan E B Pirie 2 Three

Epistemologies Three Views of Classroom Communication Constructivism Sociocultural Approaches Interactionism Anna Sierpinska 3 Verbal Interaction in the Mathematics Classroom A Vygotskian Analysis Maria G Bartolini Bussi 4 Discourse and Beyond On the Ethnography of Classroom Discourse Falk Seeger 5 From Stoffdidaktik to Social Interactionism An Evolution of Approaches to the Study of Language and Communication in German Mathematics Education Research Heinz Steinbring 6 Examining the Linguistic Mediation of Pedagogic Interactions in Mathematics Clive Kanen 7 Pupil Language Teacher Language Two Case Studies and the Consequences for Teacher Training Albrecht Abele 8 Teacher Student Communication in Traditional and Constructivist Approaches to Teaching Maria Luiza Cestari 9 Alternative Patterns of Communication in Mathematics Classes Funneling or Focusing Terry Wood 10 Students Communicating in Small Groups Making Sense of Data in Graphical Form Frances R Curcio and Alice F Artzt 11 Communication and Learning in Small Group Discussions Kaye Stacey and Anne Gooding 12 Mathematical Communication through Small Group Discussions Marta Civil 13 Formats of Argumentation in the Mathematics Classroom Gotz Krummheuer 14 Teaching without Instruction The Neo Socratic Method Rainer Loska 15 The Role of Natural Language in Prealgebraic and Algebraic Thinking Ferdinando Arzarello 16 How Students Interpret Equations Intuition versus Taught Procedures Mollie MacGregor 17 Epistemological and Metacognitive Factors Involved in the Learning of Mathematics The Case of Graphic Representations of Functions Maria Kaldrimidou and Andreas Ikonomou 18 Making Mathematics Accessible Megan Clark 19 Itineraries through Logic To Enhance Linguistic and Argumentative Skills Giancarlo Navarra and 20 Communication in a Secondary Mathematics Classroom Some Images Judith Fonzi and Constance Smith

**ASK      Language in the Mathematics Classroom** Rachel Griffiths, Margaret Clyne, 1994

What do children's responses tell us about their understanding of mathematics How do children's interpretations of mathematical language affect their performance What are the implications for teaching and learning Language in the Mathematics Classroom provides imaginative and varied suggestions for extending children's responses in all modes of communication spoken written graphic and active allowing them to broaden and deepen their mathematical understanding Language in the Mathematics Classroom explores the connections between mathematics and language looking at the many ways that children talk about represent and record mathematics      *Getting Into the Mathematics Conversation* Portia C. Elliott, Cynthia M. Elliott Garnett, 2008 Far from a run of the mill readings book *Getting into the Mathematics Conversation* is an outstanding compendium of the very best of the NCTM school journals offerings on the broad subject of communication in the mathematics classroom It spans all grade levels and targets all communication forms listening and speaking reading writing and multiple forms that a teacher might wish to develop in students      **Language and Communication in Mathematics Education** Judit N. Moschkovich, David Wagner, Arindam Bose, Jackeline Rodrigues Mendes, Marcus Schütte, 2018-03-27 This book considers some of the outstanding questions regarding language and communication in the teaching and learning of mathematics an established theme in mathematics education research which is growing in

prominence Recent research has demonstrated the wide range of theoretical and methodological resources that can contribute to this area of study including those drawing on cross disciplinary perspectives influenced by among others sociology psychology linguistics and semiotics Examining language in its broadest sense to include all modes of communication including visual and gestural as well as spoken and written modes it features work presented and discussed in the Language and Communication topic study group TSG 31 at the 13th International Congress on Mathematical Education ICME 13 A joint session with participants of the Mathematics Education in a Multilingual and Multicultural Environment topic study group TSG 32 enhanced discussions which are incorporated in elaborations included in this book Discussing cross cutting topics it appeals to readers from a wide range of disciplines such as mathematics education and research methods in education multilingualism applied linguistics and beyond

**Language Practices in School Mathematics** Anne P. Chapman, 2003 With a view to contributing to understanding the nature and role of language in mathematics education this book examines spoken language practices The book demonstrates that learning mathematics is very much a matter of learning to speak properly There is a pervasive and continual requirement often hidden in everyday classroom practices to shift towards increasingly mathematical language The outcomes of the research reported here affirm the value of viewing language and mathematics learning from a social semiotic perspective and help further our understandings about the construction of a social semiotic theory of classroom education both in school mathematics and across the curriculum

Proceedings of the Ninth International Congress on Mathematical Education Hiroshi Fujita, Yoshihiko Hashimoto, Bernard R. Hodgson, Peng Yee Lee, Steve Lerman, Toshio Sawada, 2007-05-08 Mathematics as a discipline has a long history emerging from many cultures with a truly universal character Mathematicians throughout the world have a fundamentally common understanding of the nature of mathematics and of its central problems and methods Research mathematicians in any part of the world are part of a cohesive intellectual community that communicates fluently Among organizations devoted to mathematics education The International Commission on Mathematical Instruction ICMI is distinctive because of its close ties to the mathematics community The great challenges now facing mathematics education around the world demand a deeper and more sensitive involvement of disciplinary mathematicians than we now have both in the work of educational improvements and in research on the nature of teaching and learning

*The Mathematics Educator*, 2005 *Journal for Research in Mathematics Education*, 2015 Linking Mathematics and Language Richard McCallum, Robert Whitlow, 1994 Grade level 1 2 3 4 5 6 7 k p e i t *Book Review Digest*, 1989 Excerpts from and citations to reviews of more than 8 000 books each year drawn from coverage of 109 publications Book Review Digest provides citations to and excerpts of reviews of current juvenile and adult fiction and nonfiction in the English language Reviews of the following types of books are excluded government publications textbooks and technical books in the sciences and law Reviews of books on science for the general reader however are included The reviews originate in a group of selected

periodicals in the humanities social sciences and general science published in the United States Canada and Great Britain  
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cooperative learning activities field based activities and transitional activities     Mathematics for Elementary Teachers Gary  
L. Musser, Marcia L. Swanson, 1991     *Multisensory Teaching of Basic Language Skills* Judith R. Birsh, 1999 This guide  
reveals the benefits of using multisensory instruction in any classroom After they review 50 years of research and experience  
with those with learning disabilities the authors explain how and why multisensory methods work

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