Talking Mathematics in School

Studies of Teaching and Learning

Talking Mathematics in School investigates the relationship between students' discussions about mathematics in K–12 classrooms and their mathematical understanding. Beginning with a linguistic and sociolinguistic review of what is known about connections between thought, language, and learning, Lampert and Blunk consider what this research suggests for the teaching and learning of mathematical ideas and discourse. A collection of studies from various disciplinary perspectives – set in elementary and secondary classrooms, a computer-supported tutorial, and a workplace interaction – examines the nature of mathematical talk and the roles of students, teachers, tasks, and environment in producing it. Three studies were conducted in the same classroom, applying finer and finer analytic lenses to the relationship between classroom culture and mathematical talk, with an emphasis on what the teacher does to initiate and maintain a culture that supports students' engagement in mathematical practice.

Magdalene Lampert received her doctorate in Education from Harvard University in 1981. After nearly 20 years of teaching at every level, from preschool through graduate school, Lampert joined the faculty of Education at the University of Michigan in 1994. She has published widely in the fields of research on teaching, teacher education, and mathematics education.

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Learning in Doing: Social, Cognitive, and Computational Perspectives

Talking Mathematics in School

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Edited by

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Contents

Series Foreword *page* ix
Acknowledgments xi
List of Contributors xii

1 Introduction 1
Magdalene Lampert

Part I Doing and Learning Mathematical Talk 15

2 Language Socialization in the Mathematics Classroom: Discourse Practices and Mathematical Thinking 17
Mary Catherine O'Connor

3 The Role of Imagery and Discourse in Supporting Students' Mathematical Development 56
Kay McClain and Paul Cobb

4 Building a Context for Mathematical Discussion 82
Rodney E. McNair

5 Disciplined Perception: Learning to See in Technoscience 107
Reed Stevens and Rogers Hall

Part II Teaching Mathematical Talk 151

6 Investigating Teaching Practice 153
Magdalene Lampert

7 The Teacher's Role in Mathematical Conversation: Stepping In and Stepping Out 163
Peggy S. Rittenhouse

8 Teacher Talk About How to Talk in Small Groups 190
Merrie L. Blunk

9 Teaching and Learning Politeness for Mathematical Argument in School 213
Peri Weingrad

Afterword

10 Closing Reflections on Mathematical Talk and Mathematics Teaching 241
Deborah Hicks

Author Index 253
Subject Index 257

Series Foreword

This series for Cambridge University Press is becoming widely known as an international forum for studies of situated learning and cognition.

Innovative contributions from anthropology; cognitive, developmental, and cultural psychology; computer science; education; and social theory are providing theory and research that seeks new ways of understanding the social, historical, and contextual nature of the learning, thinking, and practice emerging from human activity. The empirical settings of these research inquiries range from the classroom, to the workplace, to the high-technology office, to learning in the streets and in other communities of practice.

The situated nature of learning and remembering through activity is a central fact. It may appear obvious that human minds develop in social situations, and that they come to appropriate the tools that culture provides to support and extend their sphere of activity and communicative competencies. But cognitive theories of knowledge representation and learning alone have not provided sufficient insight into these relationships.

This series was born of the conviction that new and exciting interdisciplinary syntheses are under way, as scholars and practitioners from diverse fields seek to develop theory and empirical investigations adequate for characterizing the complex relations of social and mental life, and for understanding successful learning wherever it occurs. The series invites contributions that advance our understanding of these seminal issues.

Roy Pea
John Seely Brown
Jan Hawkins

Acknowledgments

This volume grew out of a conference on mathematics learning and communication at the Center for Research in Mathematical Sciences Education at the University of Wisconsin. This conference was designed to bring together scholars who study classroom discourse with researchers in mathematics education. During the conference, senior researchers at the Center, Elizabeth Fennema and Tom Carpenter, expressed an interest in collecting current research on the connection between "talking mathematics" and learning it in school. The papers in this volume are a result of that collection effort and the volume was prepared with support from the Center. We thank Elizabeth and Tom for the idea and the support. Among the participants in that conference, we would particularly like to acknowledge Mary Catherine O'Connor for initiating the boundary-crossing work that has made it possible for scholars from different "discourse communities" to examine issues of mutual interest. The chapter by O'Connor in this volume is a version of a working paper prepared for the conference attendees. The preparation of the book was supported in part by the National Center for Research in Mathematical Sciences Education through a grant from the Office of Educational Research and Improvement, United States Department of Education (grant no. R117G1002), and the Wisconsin Center for Education Research, University of Wisconsin – Madison.

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