
Preface

Academic language seems to be at the center of any discussion on schooling these days. The major question at hand is, How can we enhance its use in our diverse classrooms so that all students have access and opportunities for success? This volume is the first in a series of three books devoted to the language of mathematics in primary classrooms. It represents the voices of teachers as well as their students and is primarily geared to fellow teachers—sometimes working single-handedly, often with a partner or as a member of a professional learning community—who are faced with the changing student population throughout our nation.

While we pay much attention to the value of linguistic and cultural diversity in these exemplary classrooms, the issues that these teachers and school leaders face are universal:

- What is the academic language associated with student standards?
- What is the academic language found in instructional materials?
- How can academic language be exemplified in standards-referenced unit targets and lesson objectives?
- How can multiple texts and voices contribute to the teaching and learning of academic language?
- What is the evidence that teachers have incorporated academic language into their instruction and that students have integrated academic language into their learning?

We begin our journey into the world of mathematics education in Chapter 1, where series editors Margo Gottlieb and Gisela Ernst-Slavit illustrate the complexities of academic language. Here it becomes apparent that not only are there distinct dimensions of academic language, but language is also influenced by metalinguistic, metacognitive, and sociocultural awareness. Taking it one step farther, Gottlieb and Ernst-Slavit examine the language of mathematics and highlight the role of academic

language in the eight Standards for Mathematical Practice of the Common Core State Standards. In the last section of the chapter, we are introduced to the Curricular Framework, which provides the organizing tool for standards-referenced instruction and assessment throughout the series. By centering on the integration of content and academic language across curricular planning, implementation, and reflection, the Framework provides the backdrop for promoting content and language learning.

As an extension of the first chapter, we present a chart of the major mathematics domains from the Common Core State Standards with examples of academic language associated with those concepts, kindergarten through Grade 2. As each of the other chapters is an in-depth case study of a grade-level classroom and topic, we thought it would be useful to provide a full spectrum of mathematics topics in the primary grades. In addition, throughout the case studies there are call outs (*Consider this . . .*) that extend the research, pose questions for further reflection, or expand a particular concept.

Chapter 2, by Catherine Carrison and Erika Muir, provides a detailed account of a unit on whole numbers and number sense as taught by Lynne. The chapter showcases Lynne’s diverse kindergarteners as they enjoy the benefits of a well-planned unit filled with challenging tasks, engaging activities, and rich interactions. In addition, the authors offer multiple examples of how to best integrate language and conceptual understanding for students who are learning English as a second or third language and the benefits of a fluid interaction among students, families, and the school. Lynne’s success in teaching this unit can be attributed to several factors: a vibrant professional learning community, robust and well-articulated support from the district’s ELL department, and Lynne’s strong professional background and zest for learning about her students.

Chapter 3, by Sylvia Celedón-Pattichis and Sandra Musanti, delves into the planning and enactment of a first-grade unit on base-10 thinking in a Title I elementary school in the southwestern United States. All the students in this classroom are of Mexican descent, and although the school implements a bilingual program, mathematics instruction is mostly in English. In this chapter, readers can envision how Mrs. López, a native Spanish speaker, works to create a “mathematics discourse community,” where students work on being successful problem solvers in the midst of a mathematics environment with unique ways of thinking, acting, and speaking. To help her students develop a mathematics discourse, Mrs. López encourages all students to retell the story illustrated in story problems, share their mathematical thinking, rephrase questions and answers, and, for beginning ELLs, use sentence frames to communicate their mathematical thinking in English.

The last chapter, by Michael Silverstone and Debbie Zacarian, centers on Mark, a veteran second-grade teacher in a classroom with a broad spectrum of needs and strengths. Because of the level of thinking and abstraction involved in this unit on whole number operations and understanding the concepts of odd and even numbers, Michael makes special efforts to know his students, listen to their words, observe what fosters their learning, and understand their needs. Even before the school year begins, Mark connects with his students and their families, sends photos of the class, and offers to visit with them, either in their homes or in his classroom. The two-way learning that evolves from these initial efforts is clearly evident throughout the unit. The chapter also illustrates how Mark designs a unit that pushes students beyond concrete counting strategies to develop verbal reasoning and abstract thinking.

In the last two decades, we have witnessed greater teacher cooperation and collaboration; in no place is this teamwork more visible than between content and language specialists. The following pages bear witness to this phenomenon, and it is supported by research that shows how a curricular framework can be a powerful tool for stimulating teachers to work in teams. As a result, students, in particular ELLs, are stimulated to systematically learn academic language, develop metacognitive awareness, and socialize into mainstream classrooms (Tang, 1994). Educators, including school leaders and administrators, have come to realize that only with a unified vision, mutual goals, and shared responsibility for the students under their care will there be advances in teaching and learning.

REFERENCE

- Tang, G. M. (1994). Teacher collaboration in integrating language and content. *TESL Canada Journal/ Revue TESL du Canada*, 11(2), 100–116.

Along with the foundational book for the entire series, *Academic Language in Diverse Classrooms: Definitions and Contexts* (2014) by Margo Gottlieb and Gisela Ernst-Slavit, each of the three volumes for mathematics and language arts represents a grade-level cluster. Here are the contributors and their content topics for the K–8 mathematics series.

The K–8 Mathematics Series

<i>Volume</i>	<i>Contributor</i>	<i>Grade Level</i>	<i>Content Topic</i>
1	Catherine Carrison Erika Muir	K	Whole Numbers and Number Sense
	Sylvia Celedón-Pattichis Sandra I. Musanti	Grade 1	Base-10 Thinking
	Michael Silverstone Debbie Zacarian	Grade 2	Basic Operations— Odd and Even Numbers
2	Judith B. O’Laughlin	Grade 3	Time
	Gisela Ernst-Slavit Margo Gottlieb David Slavit	Grade 4	Fractions
	Jennifer M. Bay-Williams Rose M. Glasser Tricia A. Bronger	Grade 5	Algebraic Thinking— Analyzing Patterns Across Representations
3	Amanda Villagómez Kerri J. Wenger	Grade 6	Geometric Solids
	Zandra de Araujo	Grade 7	Ratios and Proportions
	Gladis Kersaint	Grade 8	Geometry—Similarity and Congruence