
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 third in a series of three books devoted to the language of mathematics in middle school 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, grades 6 through 8. 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 middle school. 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 Amanda Villagómez and Kerri Wenger, depicts the trials and tribulations of Claire, a first-year teacher, as she prepares a geometry unit in a dual immersion sixth grade classroom. In this K–8 dual English–Spanish immersion charter school located in a rural, high-poverty county in Oregon, Claire and her teaching partner, Eduardo, jointly plan and implement their project-based mathematics unit, making sure that regardless of the language of instruction, students’ content and language learning are enhanced. In addition to the detailed information about how Claire and Eduardo fine-tune their standards-based unit, the chapter is filled with a wealth of information about, examples of, and photographs of hands-on discovery learning, student-produced geometry blog posts, ways to “prime the pump,” and a culminating Día de Los Niños (Kids’ Day) celebration.

The following chapter, by Zandra de Araujo, presents a unit on ratios and proportions taught in a seventh grade classroom in a predominantly White suburban middle school in the southeastern United States. This chapter neatly illustrates the power of collaboration among grade-level teachers in planning for mathematics content and language learning. Although the narrative centers on Melanie, a mathematics and science ESOL-prepared teacher, and her students, the support she receives from her grade-level team is clearly evident. Throughout the unit, the classroom teacher encourages a substantial amount of classroom discussion that fosters students’ oral academic language development. This emphasis on classroom interaction is heightened with the use of a mathematics journal that allows Melanie to assess students’ oral and written language, differentiate instruction, and provide individualized instruction.

In the final chapter, Gladis Kersaint reports on the planning and implementation of a unit on similarity and congruence for eighth graders in an ethnically diverse urban middle school. In this chapter, Caitlin Jackson, a veteran middle school mathematics teacher endorsed in ESOL, carefully tailors instruction that builds on the strengths and addresses the needs of her 25 students, 10 of whom are English language learners (ELLs) at various stages of language development. Based on her prior experiences teaching topics such as congruence, similarity, transformations, and the Pythagorean Theorem, Ms. Jackson knows that most students experience difficulty understanding those concepts and the associated academic language. Her perspective on viewing all her students as mathematics language learners has transformed her teaching into instructional and assessment activities where language is both scaffolded and used to deepen students' understandings of mathematics.

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* by Margo Gottlieb and Gisela Ernst-Slavit (2014), 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