Language-Content Integration Across School Subjects: Approaches to Teaching English Language Learners

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Abstract This chapter provides an introduction to the present book. In an effort to provide practitioners with guidance on such pedagogical endeavor, this collection examines how the educators of varied academic disciplines (English language arts, mathematics, science, and social studies) approach the creation and implementation of curriculum spaces at the intersection of language and content. Our vision for this book was one of theory-based practice wherein descriptions of pedagogical approaches were accompanied by explicit accounts of the authors' theoretical underpinnings and epistemic/linguistic stance.

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1 Background and Rationale

English language learning has become a ubiquitous and integral aspect of content teaching in middle and high school. Increasingly, teachers of school subjects as varied as English language arts (ELA), science, mathematics, and social studies are expected to be able to pedagogically give English Language Learners (ELLs) access to disciplinary-based instruction. This is particularly evident in the recent development and adoption of the Common Core State Standards for English Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects (CCSS-ELA/Literacy), the Common Core State Standards for Mathematics, the C3 Framework for Social Studies State Standards, and the Next Generation Science Standards (NGSS). All of these educational policies highlight the role that content teachers have in developing ELL's discipline-specific competencies.

Central to this 'language across the curriculum' approach (Cross, 2016) is a shift from a separate language-dedicated classroom to wider curriculum spaces wherein language and content are integrated and coexist harmoniously across all school subjects. Teachers of academic disciplines must skillfully use content as a space for ELLs to learn an additional language in contextualized and purposeful ways. This requires not only familiarity with new and innovative approaches for teaching different subjects to ELLs, but also a broader understanding of the mediating role and place of language across a variety of integrated curriculum contexts. Teaching language across the curriculum requires pedagogical expertise in the design of language-content curriculum spaces unconstrained by traditional disciplinary boundaries.

In an effort to provide practitioners with guidance on such pedagogical endeavor, the present book examines how the educators of varied academic disciplines (English language arts, mathematics, science, and social studies) approach the creation and implementation of curriculum spaces at the intersection of language and content. Informed by current research and theory from various educational fields, this examination is ultimately aimed at informing ways whereby teachers of varied school subjects can coordinate their efforts in order to effectively realize and deliver the promise of 'language across the curriculum'. Our vision for this book was one of theory-based practice wherein descriptions of pedagogical approaches were accompanied by explicit accounts of the authors' theoretical underpinnings and epistemic/linguistic stance. This book offers practical guidance that is grounded in relevant theory and research and offers teachers suggestions on how to use the approaches described herein. Reflection questions help readers consider the various ways that content and language can be integrated and promoted at the secondary level.

2 Taking Down Disciplinary Walls

Previous books on content-language integrated teaching have been too narrowly focused on supporting English language learners' acquisition of academic content within the epistemic confines of individual school subjects. Aligned with traditional disciplinary-based approaches to school instruction, this literature has been mostly constrained by disciplinary boundaries that have been increasingly criticized for its highly arbitrary and problematic nature. As Scheffer (1991) writes "we divide the matter of education into familiar 'subject' categories and think thereby to have simplified and clarified the task of teaching… what could be more familiar or more misguided?" (p.71). Such a recognition has, in recent years, led to widespread adoption of pedagogical approaches that cross traditional disciplinary boundaries such as socioscientific argumentation (science and social studies), STEM (Science-Technology-Engineering-Mathematics), STEAM (STEM + Arts), the Science Writing Heuristics (science and language arts), history of science, and history of mathematics. In addition, the emergence of co-teaching models (Honigsfeld & Dove, 2010) through which language specialists and content-area specialists/teachers seek to collectively meet the needs of English language learners further highlight the need for a resource that is unconstrained by disciplinary division. This is precisely what sets this book apart from previous publications. As a multidisciplinary resource, this unique book will provide educational practitioners and researchers with a broader understanding of research-informed practices used to teach different content areas to English language learners, and hence help them better navigate disciplinary boundaries at the middle and high-school level.

3 North America Emphasis

Chapters in this book are predominately from educators based in the United States and Canada. Most chapters are rooted in U.S. learning standards and educational policies. Nonetheless, they tackle pedagogical issues with varied degrees of similarity to those found in many other countries and its insights are likely to be applicable to a wide range of contexts, including ones where the instructional language is not necessarily English. Although this particular context is privileged in the book, we fully acknowledge that the issue of effectively helping students overcome language obstacles to content learning is of worldwide interest, and reaches far beyond the English-speaking world. As such, this book will likely be of great interest to educators in different parts of the world beyond North America.

4 Terminology and Acronyms

One particularly challenging aspect of putting together an edited volume like this is with regard to the terminology used to identify the target student population with whom the authors of each separate chapter set out to work. Part of the reason is that there is little agreement in the scholarly literature as to what name best describes these students. Each designation has different connotations and problems, with different terms being favored by researchers within distinct research traditions depending upon one's philosophical commitment, sociopolitical orientation, and unique focus. These include emergent bilingual, bi/multilingual students, additional language speaker, English language learner (ELL), English learner (EL), Limited English Proficient (LEP), non-native speaker (NNS), L2 speaker, etc.

In an effort to increase the overall coherence of the volume and create consistency across chapters, we worked with authors on reducing variation in the terminology, without imposing a particular term or standard acronym that may make them uncomfortable. Toward this end, we asked authors to use "English Language Learners" (ELL) since this was the term used in the book title, but made exceptions when authors strongly objected to this term. As a result, most chapters adopted to use the acronym ELLs (English Language Learners), but other terms were used as terms of choice more closely aligned with authors' sociopolitical convictions.

5 Book Format and Organization

This practitioner-oriented book is divided into four sections representing the following content areas: English Language Arts (chapters "Multimodal Literacies in the English Language Arts Classroom for English Language Learners", "From Words to Thematic Text Analysis: Collocation Activities as Academic Vocabulary Building Strategies in the Middle and High School ELA Classroom (Grades 6–12)", "A Genre-Based Approach to Teaching Argument Writing", "Six High-leverage Writing Practices for Teaching English Language Learners in English Language Arts", and "Using Multicultural Nonfiction and Multimedia to Develop Intercultural Competence"), Mathematics (chapters "Keying English Learner Students into Mathematical Content: The *Things I Notice* Approach", "Doing and Talking Mathematics: Engaging ELLs in the Academic Discourse of the Mathematical Practices", "A Framework for Improving the Teaching of Mathematics to Bi/Multilingual Learners", "Culturally Supporting Latinas and Korean Girls in Mathematics", and "Linguistically Responsive Teaching to Foster ELL Engagement, Reasoning, and Participation in a Mathematics Discourse Community"), Science (chapters "Activating Bilingual English Language Learners' Strengths in Science: The Pedagogy of Argument Driven Inquiry (ADI)", "Supporting English Language Learners Through Inquiry-Based Science: Three Strategies for Your Classroom", "Engaging English Language Learners in Model-Based Science Instruction",

"Scaffolding English Language Learners' Literacy Development Through a Science Inquiry Approach", and "Using Communication Models to Teach ELLs Science"), and Social Studies (chapters "Engaging ELL's Positionality Through Critical Geography and History in the Social Studies Classroom", "Developing Literacy Through Contemporary Art: Promising Practices for English Language Learners in Social Studies Classrooms ", "Visual Biography and Citizenship: Biography Driven Instruction in the Social Studies Classroom", "Thinking Inside the Box: Using Graphic Novels to English Language Learners in the Social Studies Classroom", and "Multiple Perspectives: Engaging Diverse Voices in the Social Studies Classroom"). The chapters provide different approaches for teaching varied academic contents to English language learners, an increasing population in today's schools. Each part provides insights on the pedagogical approaches taken by content and language educators who set out to support ELLs in a particular school subject. In addition to revealing educational content-language integrated practices prevalent in the fields of ELA education, mathematics education, science education and social studies education, each section also highlights theoretical perspectives and research findings that predominantly inform and influence efforts to teach content to ELLs in distinct content areas found in the secondary school curriculum. Combined, these four sets of chapters afford readers a unique opportunity to familiarize themselves with the current state of language across the curriculum as well as a chance to explore similarities and differences in language-content curriculum spaces. An overview of all pedagogical approaches examined in this book can be found in Table 1.

6 Transcendent Practices and Theories

Several transdisciplinary pedagogical practices cut across content areas (see Table 2 for a matrix of how strategies and theories map across the chapters). One important content-language integration practices that transcends school subjects is **visualization**, a trend that suggests that visual support and scaffolding constitutes an essential feature of content-language curriculum spaces, irrespective of content area.

Across the chapters, visual supports are extensively used to teach specialized non-language content to ELLs. These visual-based approaches to content-language instruction typically involve strategic deployment of visual supports such as diagrams and graphs (chapters "Keying English Learner Students into Mathematical Content: The *Things I Notice* Approach", "A Framework for Improving the Teaching of Mathematics to Bi/Multilingual Learners", and "Engaging English Language Learners in Model-Based Science Instruction"), maps (chapter "Engaging ELL's Positionality Through Critical Geography and History in the Social Studies Classroom"), word walls (chapter "Supporting English Language Learners Through Inquiry-Based Science: Three Strategies for Your Classroom"), visual biographies (chapter "Developing Literacy Through Contemporary Art: Promising Practices for English Language Learners in Social Studies Classrooms"), graphic novels (chapter

Table 1 Overview of chapters per disciplinary area

Chapters		Pedagogical approaches
ELA	Multimodal Literacies in the English Language Arts Classroom for English Language Learners	Multimodal literacies that integrate components of knowledge processes.
	From Words to Thematic Text Analysis: Collocation Activities as Academic Vocabulary Building Strategies in the Middle and High School ELA Classroom (Grades 6–12)	Apprenticeship approach: scaffolded instruction, student-centered tasks, collaboration and negotiation of meaning, and front-loading discussions.
	A Genre-Based Approach to Teaching Argument Writing	Genre-based teaching and learning cycle (TLC) for reading and writing: Deconstruction, Joint Construction, and Independent Construction.
	Six High-leverage Writing Practices for Teaching English Language Learners in English Language Arts	Writing practices that support the needs of ELLs: genre writing taught as a detailed, recursive practice, and modeling of metacognitive process for writing.
	Using Multicultural Nonfiction and Multimedia to Develop Intercultural Competence	Scaffolded close reading, listening, and communication activities; collaborative writing, publishing, and presenting.
Mathematics	Keying English Learner Students into Mathematical Content: The *Things I Notice* Approach	"Things I Notice" approach: Think-Pair-Share, examination of mathematical representations/objects.
	Doing and Talking Mathematics: Engaging ELLs in the Academic Discourse of the Mathematical Practices	Discourse moves (questioning, feedback) to: facilitate oral discussion, and foster collaborative meaning-making;
	A Framework for Improving the Teaching of Mathematics to Bi/Multilingual Learners	Reflective prompts: know the content, know the language, know the learner, engage the community and assess meaningfully.
	Culturally Supporting Latinas and Korean Girls in Mathematics	Culturally and linguistically sensitive practices for creating learning opportunities based on ELLs cultural backgrounds and specific needs.
	Linguistically Responsive Teaching to Foster ELL Engagement, Reasoning, and Participation in a Mathematics Discourse Community	Word problems and visual representations to teach math register: responsive practices (L1 use, translanguaging) and discourse moves (questioning prompts).

(continued)

Table 1 (continued)

Chapters		Pedagogical approaches
Science	Activating Bilingual English Language Learners' Strengths in Science: The Pedagogy of Argument Driven Inquiry (ADI)	Argument Driven Inquiry: experimental investigation combined with oral argumentation, writing, and peer review.
	Supporting English Language Learners Through Inquiry-Based Science: Three Strategies for Your Classroom	Inquiry-based strategies for ELLs: short silent movies, interactive word walls, interactive science notebooks, and collaborative learning.
	Engaging English Language Learners in Model-Based Science Instruction	Scientific modeling with language combining (sentence frames, word banks). ELLs orally defend and write explanations for scientific models.
	Scaffolding English Language Learners' Literacy Development Through a Science Inquiry Approach	Supporting ELLs through macro-scaffolding (careful sequencing of activities and lesson) and micro-scaffolding (comprehensible input).
	Using Communication Models to Teach ELLs Science	Discourse moves for teachers to facilitate oral discussion (5R model) and planning for just-in-time support during inquiry lessons.
Social studies	Engaging ELL's Positionality Through Critical Geography and History in the Social Studies Classroom	Critical geography activities: creating map of daily lives, listing significant places and spaces, creating map-based narratives, and primary source analysis.
	Developing Literacy Through Contemporary Art: Promising Practices for English Language Learners in Social Studies Classrooms	Biography-driven instruction for civic development: citizenship education and visual biography using Photovoice.
	Visual Biography and Citizenship: Biography Driven Instruction in the Social Studies Classroom	Using contemporary art to promote ELL learning of social studies and current social issues.
	Thinking Inside the Box: Using Graphic Novels to English Language Learners in the Social Studies Classroom	Graphic novels, use of multimodal text supports and historical fiction narratives to promote ELLs comprehension.
	Multiple Perspectives: Engaging Diverse Voices in the Social Studies Classroom	Developing multiple perspectives through Structured Academic Controversy (SAC) and Readers' Theater.

Table 2 Transcendent practices in content-language curriculum spaces

Transcending practices	Chapters
Visualization	"Keying English Learner Students into Mathematical Content: The *Things I Notice* Approach", "A Framework for Improving the Teaching of Mathematics to Bi/Multilingual Learners", "Supporting English Language Learners Through Inquiry-Based Science: Three Strategies for Your Classroom", "Engaging English Language Learners in Model-Based Science Instruction", "Engaging ELL's Positionality Through Critical Geography and History in the Social Studies Classroom", "Developing Literacy Through Contemporary Art: Promising Practices for English Language Learners in Social Studies Classrooms", "Visual Biography and Citizenship: Biography Driven Instruction in the Social Studies Classroom", "Thinking Inside the Box: Using Graphic Novels to English Language Learners in the Social Studies Classroom"
Writing/text production	"A Genre-Based Approach to Teaching Argument Writing", "Six High-leverage Writing Practices for Teaching English Language Learners in English Language Arts", "Using Multicultural Nonfiction and Multimedia to Develop Intercultural Competence", "Activating Bilingual English Language Learners' Strengths in Science: The Pedagogy of Argument Driven Inquiry (ADI)", "Scaffolding English Language Learners' Literacy Development Through a Science Inquiry Approach", "Engaging ELL's Positionality Through Critical Geography and History in the Social Studies Classroom", "Developing Literacy Through Contemporary Art: Promising Practices for English Language Learners in Social Studies Classrooms"
Oral discussion	"From Words to Thematic Text Analysis: Collocation Activities as Academic Vocabulary Building Strategies in the Middle and High School ELA Classroom (Grades 6–12)", "Doing and Talking Mathematics: Engaging ELLs in the Academic Discourse of the Mathematical Practices", "Linguistically Responsive Teaching to Foster ELL Engagement, Reasoning, and Participation in a Mathematics Discourse Community", "Using Communication Models to Teach ELLs Science"
Kinesthetic activity	"Activating Bilingual English Language Learners' Strengths in Science: The Pedagogy of Argument Driven Inquiry (ADI)", "Supporting English Language Learners Through Inquiry-Based Science: Three Strategies for Your Classroom", "Engaging English Language Learners in Model-Based Science Instruction", "Multiple Perspectives: Engaging Diverse Voices in the Social Studies Classroom"

"Thinking Inside the Box: Using Graphic Novels to English Language Learners in the Social Studies Classroom"), and art viewing guides (chapter "Visual Biography and Citizenship: Biography Driven Instruction in the Social Studies Classroom"). Commonly found in various parts of the content classroom (walls, blackboard, textbook, instructional materials, computer screens, PowerPoint projections, etc.), such imagery can provide ELs with conceptual support as well as linguistic support. Conceptually-focused visuals promote content mastery by helping students visualize and make sense of abstract concepts and ideas important to an academic discipline (e.g., graphs). Typically found in science, mathematics and social studies, these conceptual representations share a certain degree of analogical correspon-

dence with target concepts (i.e., serve as *visual analogies*) (Gilbert & Ireton, 2003). On the other hand, language-focused visual supports depict language itself (e.g., wordwalls, Frayer Model). By making keywords accessible in the nearby physical environment (e.g., classroom walls, handouts), these visuals linguistically support ELLs. These language representations are typically used by language arts teachers to support vocabulary instruction (Fisher, & Frey, 2008; Graves, August, & Mancilla-Martinez, 2013).

Though inclusive of both paper-based and computer-based forms, more dynamic forms of visual representation such as interactive computer simulations are relatively less frequent in content-language curriculum spaces across school subjects. Unlike static visuals, dynamic visuals such as computer animations and videos provide ELLs with transient (vs. permanent) information (Höffler & Leutner, 2007; Lowe & Schnotz, 2008). The potential pedagogical affordances of non-static visuals for language-content curriculum spaces are exploited in only isolated instances, hence suggesting that non-static visuals are yet to become an integral part of efforts aimed promoting language across the curriculum.

Another transcendent and transdisciplinary practice in content-language integration is the use of **writing**. Across school subjects, writing-to-learn strategies are widely adopted in support of ELL content development. As part of these literacy-based approaches to content-language integrated instruction, ELLs generally receive explicit instruction on wide range of academic genres and literary practices (chapters "A Genre-Based Approach to Teaching Argument Writing", "Six High-leverage Writing Practices for Teaching English Language Learners in English Language Arts", and "Using Multicultural Nonfiction and Multimedia to Develop Intercultural Competence") and produce remarkably distinct texts depending on the specific disciplinary context in which written production occurs, including science inquiry reports (chapters "Activating Bilingual English Language Learners' Strengths in Science: The Pedagogy of Argument Driven Inquiry (ADI)" and "Scaffolding English Language Learners' Literacy Development Through a Science Inquiry Approach"), self-narratives (chapter "Engaging ELL's Positionality Through Critical Geography and History in the Social Studies Classroom"), and biographies (chapter "Developing Literacy Through Contemporary Art: Promising Practices for English Language Learners in Social Studies Classrooms"). Such a trend underscores the important role that writing can play in supporting ELLs' simultaneous acquisition of language and content. For this to occur, writing needs to be situated as part of a larger context of guided reflection and exploration.

Transcendent use of writing is consistent with recent calls for writing within the disciplines, based on the differing forms of argument and evidence central to each discipline (Applebee & Langer, 2011a, 2011b; Langer, 2011). From this perspective, teaching disciplinary writing falls centrally within the domain of the subject matter teacher. As emphasized by Shanahan and Shanahan (2008) "there are differences in how the disciplines create, disseminate, and evaluate knowledge, and these differences are instantiated in their use of language" (p. 48). Rather than simply completing assignments that are limited in scope and highly formulaic (regurgitating information within templates and worksheets), students need to engage in kinds

of writing that allow them to explore new understandings, articulate ideas, activate prior knowledge, clarify evolving interpretations of concepts, and reflect on what has been learned that is at the heart of classroom activity. This is precisely the type of writing emphasized by disciplinary educators who embrace written text production in support of ELLs in various chapters of this book.

A third transcendent practice in content-language integration across the curriculum is **oral discussion**. Across all four content areas, secondary subject matter educators consistently resort to scaffolded spoken discourse (teacher-led and small-group discussions) as a means to meet language learners' linguistic and epistemic needs. To simultaneously support ELL content knowledge and language development, educators in ELA, math, science, and social studies have developed specific questioning techniques and discursive moves (chapters "Doing and Talking Mathematics: Engaging ELLs in the Academic Discourse of the Mathematical Practices", "Linguistically Responsive Teaching to Foster ELL Engagement, Reasoning, and Participation in a Mathematics Discourse Community" and "Using Communication Models to Teach ELLs Science") as well as practices such as front-loading discussions (chapter "From Words to Thematic Text Analysis: Collocation Activities as Academic Vocabulary Building Strategies in the Middle and High School ELA Classroom (Grades 6–12)"). Such a pattern is clearly indicative of growing awareness among content educators of the importance of engaging ELLs in meaningful instructional conversations and dialogical meaning-making.

This transcendence of orality in content-language curriculum spaces is consistent with general endorsement of dialogism in educational scholarship. Growing numbers of content educators have advocated use of spoken strategies designed specifically to support meaning-making and to open up classroom dialogue (Reichen, Oliveira, Oliver, & Florencio-Wain, 2016). Rooted in Bakhtin's (1981) and Voloshinov's (1995) seminal work, dialogical approaches typically entail a shift away from traditional interactional patterns such as monologues (lectures) and Initiation-Response-Evaluation (or IRE) (Lemke, 1990; Mehan, 1979) to classroom discussions that resemble casual conversations and are characterized by plurality of voices, interactivity (turn-taking), transactivity (uptake and elaboration of each other's ideas), social equality, spontaneity (emergent and unplanned topic development), informal and supportive relationships) and non-authoritative negotiation of meanings. As previous research has shown, classroom discussions can be characterized by "pseudo-dialogism" in the sense that students remain without a voice even when allowed to speak. In truly dialogic exchanges, ELLs claim ownership, agency, and responsibility for words spoken, and their utterances are recognized as epistemically valuable (serious and important contributions to knowledge construction process), being taken up into the larger conversation. This what it means for ELLs to truly have a voice in content classrooms.

A fourth and final content-language integrated practice that crosses disciplinary boundaries is **kinaesthetic activity**. In several chapters, content educators resort to "learning by physically doing" as means to support ELLs. This physical activity can take a wide range of forms spanning from physical manipulation of tangible objects as part of science inquiries (chapters "Activating Bilingual English Language

Learners' Strengths in Science: The Pedagogy of Argument Driven Inquiry (ADI)", "Supporting English Language Learners Through Inquiry-Based Science: Three Strategies for Your Classroom", and "Engaging English Language Learners in Model-Based Science Instruction") to theatrical performance and role playing (chapter "Multiple Perspectives: Engaging Diverse Voices in the Social Studies Classroom"). Such a trend suggests growing realization among educators that thoughtful integration of doing (physical activity) with speech (verbal activity) can provide ELLs with a more authentic context for purposeful language use and knowledge co-construction.

Engagement in hands-on activity is particularly common in science education wherein students physically perform physical actions as part of investigative efforts such as science inquiries. Aimed at producing empirical evidence to answer scientific questions, students "talk science" as they plan and implement science experiments such as fair tests. Far less common is the deployment of dramatism and theatricality as a pedagogical resource that can be strategically drawn upon in support of student acquisition of scientific content. Although the pedagogical value of drama activities has been previously highlighted in studies showing that complex and abstract concepts such as chemical formulas (Aubusson & Fogwill, 2006), ecosystems (Bailey & Watson, 1998), states of matter (Varelas et al., 2010), and wavelengths (Dorion, 2009) can afford students deeper scientific understandings, theatrical activity remains fairly rare. The same state of affairs pervades content-language integrated approaches described in this book wherein investigative action is for the most part favored over theatrical action. The performing arts seem to remain for the most part absent from content-language curriculum spaces as currently approached by non-language educators.

In conclusion, the chapters in this book illuminate the multifaceted nature of designing and realizing curriculum spaces at the intersection of content and language. Together, they paint a picture of effective content-language integration across the curriculum as a pedagogical endeavor that is highly generative, dialogic, dynamic, figurative, formative, and transformative. They also highlight the fact that language is paramount to the enculturation of learners into academic thought, regardless of specific discipline. As Oliver Wendell Holmes poetically argues, "language is the blood of the soul into which thoughts run and out of which they grow." It is our hope that the present book can help educators not only recognize but also capitalize on this organic/symbiotic/physiological relationship, and thus make subject area instruction more inclusive, equitable and accessible to all students regardless of language or sociocultural background.

7 Overview of Chapters

Chapters "Multimodal Literacies In The English Language Arts Classroom For English Language Learners", "From Words to Thematic Text Analysis: Collocation Activities as Academic Vocabulary Building Strategies in the Middle and High

School ELA Classroom", "A Genre-Based Approach to Teaching Argument Writing", "Six High-Leverage Writing Practices for Teaching English Language Learners in English Language Arts" and "Using Multicultural Nonfiction and Multimedia to Develop Intercultural Competence" provide approaches focused on multiliteracies, vocabulary development, writing instruction, and multimedia-integrated literacy activities in the content area of English language arts. Chapter "Multimodal Literacies In The English Language Arts Classroom For English Language Learners" by Luciana C. de Oliveira, Loren Jones, and Sharon Smith, explores an approach to teaching ELA to English language learners through a multimodal literacies framework with an emphasis on multimodality. They focus on four components of multiliteracies, and how the focal ELA teacher uses these to guide her instruction and discuss the specific ways in which an ELA high school teacher implemented these components in her 9th grade classroom through a multimodal project focused on the Holocaust. They conclude with implications for practicing and pre-service teachers and educational researchers.

In chapter "From Words to Thematic Text Analysis: Collocation Activities as Academic Vocabulary Building Strategies in the Middle and High School ELA Classroom," Brandy Gibb and Guofang Li describe how ELA teachers can provide apprenticeship in academic vocabulary through collocation (or common phrasing) activities to help ELLs develop their use of sophisticated content-based vocabulary and prepare them for thematic text analysis tasks in the ELA classroom. They highlight how working with collocations requires ELLs to combine academic vocabulary into phrasal categories such as combining the academic word, often a noun, with the appropriate verb, adjective, or preposition. They highlight how this process leads to a thematic understanding of the academic language used throughout a text and is a transferable skill that supports ELLs' academic success within and beyond the ELA classroom.

Chapter "A Genre-Based Approach to Teaching Argument Writing," by Kathleen Ramos, provides an authentic classroom example of a research-based approach that secondary ESOL/ELA teachers can apply to teach ELLs from diverse cultural, linguistic, and educational backgrounds to write an academic-style, authoritative argument. Using the teaching and learning cycle (TLC) of genre pedagogy, teachers can make visible and tangible the language tools, or academic language resources, that ELLs can employ to write well in this critical genre. This chapter is grounded in theories of language and learning and provides advice for teachers to use the TLC to design and implement instruction that strengthens ELLs' academic language and literacy development while supporting learning of grade-level disciplinary content.

In chapter "Six High-Leverage Writing Practices for Teaching English Language Learners in English Language Arts," Julie Goldman gives an overview of the Six High-leverage Writing Practices Approach for teaching ELLs in ELA contexts. The chapter aims to help educators cultivate a shared understanding around quality ELL-relevant instructional practices and create more purposeful, coherent systems – in classrooms and across schools – to support ELLs to thrive academically. This approach links theory to practice and provides a structure for teachers to

engage culturally and linguistically diverse students in a dynamic culture of thinking and meaning making.

Chapter "Using Multicultural Nonfiction and Multimedia to Develop Intercultural Competence," by Vicky Giouroukakis and Maureen Connolly, describes an approach used in the ELA classroom that combines multicultural nonfiction and multimedia to develop students' intercultural competence. This approach encompasses an extended learning experience involving In Our Village, a series of nonfiction texts about different cultures throughout the world. The chapter provides examples of various literacy activities and multimedia use to explore the concept of culture and represent students' new understandings and experiences through the publication of their own book about their cultures.

Chapters "Keying English Learner Students into Mathematical Content: The *Things I Notice* Approach", "Doing and Talking Mathematics: Engaging ELLs in the Academic Discourse of the Mathematical Practices", "A Framework for Improving the Teaching of Mathematics to Bi/Multilingual Learners", "Culturally Supporting Latinas and Korean Girls in Mathematics" and "Linguistically Responsive Teaching to Foster ELL Engagement, Reasoning, and Participation in a Mathematics Discourse Community" discuss approaches to the teaching and learning of mathematics through discourse-based, culturally-sensitive, and linguistically-responsive strategies. Chapter "Keying English Learner Students into Mathematical Content: The *Things I Notice* Approach," by Jill A. Perry and Beth A. Wassell, describes *Things I Notice,* a three-phase approach to teaching mathematics in which teachers engage students in deliberately examining and interrogating features of mathematical representations or problem structures by providing independent noticing/thinking time, partner discussion time, and whole-class discussion time. Using a vignette of a high school teacher who uses this approach with a group of ELLs with varied proficiency levels in English, the authors explain how this approach can be enacted in a classroom to help ELLs engage as members of a community of mathematical discourse while supporting their oral academic language development.

In chapter "Doing and Talking Mathematics: Engaging ELLs in the Academic Discourse of the Mathematical Practices," Rita MacDonald, Sarah Lord, and Emily Miller present a process and resources for enacting a discourse-centered pedagogy that builds mathematical understanding while simultaneously engaging and supporting students to develop the language of complex thinking. Using a small set of Teacher Discourse Moves and Student Discourse Moves, teachers focus on deepening students' mathematical reasoning in ways fully inclusive of ELLs, while also helping all students build the language of complex thinking and mathematical argumentation.

In chapter "A Framework for Improving the Teaching of Mathematics to Bi/Multilingual Learners," Kara Mitchell Viesca, Nicole M. Joseph, and Nancy Commins propose that mathematics teachers should consider the following five elements to teach mathematics to bi/multilingual learners: know the content, know the language, know the learner, engage the community and assess meaningfully. This chapter defines each of these elements, explores how they are put into practice, and

shares the responses of teachers who have participated in online professional development organized around each element. The authors claim that approaching mathematics teaching with these elements in mind enables teachers to more effectively support high levels of learning and achievement for bi/multilingual learners across levels of English proficiency and grade levels.

Chapter "Culturally Supporting Latinas and Korean Girls in Mathematics," by Woong Lim, Kyeong-Hwa Lee, and Paula Guerra, discusses strategies to create culturally and linguistically sensitive secondary mathematics classrooms. The authors use a teaching scenario of a review activity to solve Algebra 2 problems to illustrate four practices for promoting ELLs' thinking, reasoning, and participation in classroom discourse. The chapter shows how teachers can create a safe, interactive learning environment for ELLs through cultural sensitivity and a positive relationship with learners, their families and communities.

In chapter "Linguistically Responsive Teaching to Foster ELL Engagement, Reasoning, and Participation in a Mathematics Discourse Community," Mary A. Avalos and Walter G. Secada draw upon a co-teaching experience in a sixth-grade mathematics classroom as to how mathematics teachers can carry out research-based suggestions to foster ELLs' engagement and participation in mathematics discussions; to apprentice use of the mathematics register; and ultimately, to develop content understanding. They illustrate this approach based on actual experiences to establish an environment conducive to discussions in an urban classroom, with the objective of utilizing semiotics, such as language, symbols, and visual representations during instruction as relevant mathematical meaning-making systems.

Chapters "Activating Bilingual English Language Learners' Strengths in Science: The Pedagogy of Argument Driven Inquiry (ADI)", "Supporting English Language Learners Through Inquiry-Based Science: Three Strategies for Your Classroom", "Engaging English Language Learners in Model-Based Science Instruction", "Scaffolding English Language Learners' Literacy Development Through a Science Inquiry Approach" and "Using Communication Models to Teach ELLs Science" take readers through approaches focusing on language-intensive instructional strategies, inquiry-based methods, hands-on activities, and interdisciplinary lessons in the content area of science. Chapter "Activating Bilingual English Language Learners' Strengths in Science: The Pedagogy of Argument Driven Inquiry (ADI)," by Rebecca M. Callahan, Victor Sampson, and Stephanie Rivale, describes how teachers can use the Argument Driven Inquiry (ADI) instructional approach to provide bilingual ELLs with opportunities to participate in the practices of science while strengthening both their English and scientific literacy skills. This type of language-intensive instructional approach can also help bilingual ELL students develop and maintain science identities.

In chapter "Supporting English Language Learners Through Inquiry-Based Science: Three Strategies for Your Classroom," Joshua W. Reid, Cindi Smith-Walters, Katherine A. Mangione, Alison Dorris, and Terri Tharp use inquiry-based learning as an approach to discuss three strategies for teaching ELLs science content: (a) short silent movies, (b) interactive word walls, and (c) interactive science

notebooks. Using vignettes that focus on natural selection to give context for each strategy, the authors discuss the best methods to implement these strategies, suggestions to modify them, as well as the limitations of each. The chapter concludes with a summary of each strategy, a brief discussion on how to combine these strategies for maximum benefit, as well as, questions to reflect on how to promote best practices with these strategies.

Chapter "Engaging English Language Learners in Model-Based Science Instruction," by Magdalena Pando and Zenaida Aguirre-Muñoz, discuss a model-based instructional approach that integrates content and language to provide ELLs with linguistically rich opportunities while learning science. This approach allows ELLs opportunities to construct models as hands-on activities to represent some aspect of reality and to practice using the language of science to evaluate and defend their model constructions through oral and written argumentation.

In chapter "Scaffolding English Language Learners' Literacy Development Through a Science Inquiry Approach," Sandra Mercuri and Natascha Mercuri present an interdisciplinary Life Sciences inquiry unit centered in a constructivist view of learning through macro and micro scaffolding. They draw on disciplinary literacy and discipline-specific academic language lenses to discuss how the interrelated activities are aligned with national standards and show how the language and literacy practices are embedded throughout the science unit. The chapter provides examples of how teachers could help ELLs learn content and to read and write more, to use grammar and vocabulary more accurately, and to master an extensive range of linguistic features in order to meet the standards challenging academic demands.

Chapter "Using Communication Models to Teach ELLs Science," by Alandeom Oliveira and Molly Weinburgh describe how science teachers can use communication models to guide their design and implementation of science lessons for ELLs. Taking the form of diagrams that visually depict communicative processes underlying science content instruction, communication models provide instructors with an intuitive and accessible way of critically examining content-language integrated learning. The authors show how two models – repair-and-accommodation and 5R – help science teachers with limited linguistic expertise infuse content learning with additional language acquisition.

Chapters "Engaging ELL's Positionality Through Critical Geography and History in the Social Studies Classroom", "Developing Literacy Through Contemporary Art: Promising Practices for English Language Learners in Social Studies Classrooms", "Visual Biography and Citizenship: Biography Driven Instruction in the Social Studies Classroom", "Thinking Inside the Box: Using Graphic Novels to English Language Learners in the Social Studies Classroom" and "Multiple Perspectives: Engaging Diverse Voices in the Social Studies Classroom" describe approaches to teaching social studies through critical geography and history, contemporary art, visual biography and citizenship, and an exploration of multiple perspectives. Chapter "Engaging ELL's Positionality Through Critical Geography and History in the Social Studies Classroom," by J. Spencer Clark, G. Sue Kasun, and Fallon Farokhi describes an approach to engage ELLs' position-

ality through a carefully sequenced critical geography activity that asks students to create a map of their daily life, list significant places and spaces, and identify their relationships to these places and spaces. Students develop a narrative related to their map and use both as primary sources to compare, contrast, and/or corroborate with their classmates and discuss the role of positionality in interpreting historical and current circumstances.

In chapter "Developing Literacy Through Contemporary Art: Promising Practices for English Language Learners in Social Studies Classrooms," Bárbara C. Cruz and Robert W. Bailey describe an innovative approach that incorporates contemporary art in social studies instruction. A model lesson is included that explores the work of contemporary artist Mary Mattingly and has students consider the ecological footprints left by humans as they interact with their environment. A university-school partnership that employs curricular interdisciplinarity, relevance to students' lives, and active learning is described. To achieve these goals, ELL-supportive classroom strategies such as rich visual content, word walls, and scaffolded cooperative learning are utilized and discussed.

Chapter "Visual Biography and Citizenship: Biography Driven Instruction in the Social Studies Classroom," by Jillian Baldwin Kim, Alexander Cuenca, and Amy Yun-Ping Chen, describes an approach that cultivates ELLs' social, civic, and cultural fluency to surface their contextualized civic realities. The authors suggest a biography-driven instructional approach as an opportunity to learn about students' civic lives and share how the construction of a visual biography through photography can be used to personalize the rights, responsibilities, and spaces of citizenship.

In chapter "Thinking Inside the Box: Using Graphic Novels to English Language Learners in the Social Studies Classroom," Carla K. Meyer, Laura Mahalingappa, and Kristy A. Brugar detail how to use a sheltered model that incorporates an explicit focus on disciplinary language needs and development to teach ELLs history while investigating the role graphic novels and reflective inquiry play in their instruction.

Chapter "Multiple Perspectives: Engaging Diverse Voices in the Social Studies Classroom," by Paul J. Yoder and Ashley Taylor Jaffee, explores the investigation of multiple perspectives and showcases two pedagogical strategies – Structured Academic Controversy and Reader's Theater – that teachers can use to make content accessible and highlight students' diverse voices. They draw on a framework for multicultural education, present each pedagogical strategy, and discuss how these strategies support a social studies curriculum that is culturally and linguistically responsive to the needs of ELLs.

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