Reading Comprehension Skill Development and Instruction for Adolescent English Language Learners: A Focus on Academic Vocabulary Instruction

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Abstract This chapter describes the reading comprehension development of adolescent ELLs, and the nature of their difficulties in this domain. We first describe the ELL population in U.S. secondary schools today—the diversity within the group and its academic achievement. We then discuss the elements and nature of the reading process itself to provide readers the foundational knowledge to understand the challenges faced by adolescent ELLs. We also highlight a series of research-based instructional practices that support the literacy development of adolescent ELLs. In particular, we focus on the importance of academic vocabulary instruction, as a key element of academic language instruction, for promoting these students' advanced literacy skills. We conclude this chapter by delineating a literacy research agenda that will address and answer many of the pressing questions posed by today's educators and policymakers.

Keywords English language learners • Academic language • Vocabulary

1 Introduction

Questions once posed by individual teachers concerned about a single student acquiring English as a second language at school—part of a relatively small group of struggling readers—are now asked by policymakers and practitioners alike as they attempt to support a sizeable (and growing) population of students to gain advanced literacy skills. Indeed, the rapid growth of the English language learner (ELL)[1] population, who, on average, appear to struggle with comprehending grade-

[1]We adopt 'English Language Learner,' rather than the term, 'emergent bilingual' (García, Kleifgen, & Falchi, 2008), throughout this manuscript given that this is the term used most widely in U.S. school districts and federal policy (Menken, Kleyn, & Chae, 2012).

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level texts, raises multiple questions for researchers, educators, and policymakers (for further discussion, see Lesaux, 2006, 2012). Many of these questions, which are this chapter's focus, relate to the development and instruction of this population's advanced literacy skills: Who are adolescent ELLs? Why is reading in middle school and beyond challenging for ELLs and their peers? What are some research-based practices that support ELLs' literacy development? And, what should the research program of tomorrow look like in light of the challenges faced by ELLs in our secondary schools today?

This chapter discusses the reading comprehension development of adolescent ELLs, and illuminates the potential sources of difficulty these students encounter as they are confronted with complex texts in middle school and beyond. Specifically, we begin the chapter by describing the ELL population in U.S. secondary schools today—the diversity within the population and its academic achievement. We then discuss the elements and nature of the reading process itself to provide readers with the foundational knowledge to understand the challenges faced by adolescent ELLs, as a population that have been traditionally 'overlooked and underserved' as a result of the focus in the extant literature on primary school English Language Learners (Ruiz-de-Velasco & Fix, 2000; Short & Fitzsimmons, 2007). We also highlight a series of research-based instructional practices that support the literacy development of adolescent ELLs. In particular, we focus on the relevance of academic vocabulary instruction, as a subset of academic language (AL) instruction, for promoting these students' advanced literacy skills. Whereas academic language instruction attends broadly to the numerous language features and text structures that are found in academic texts, we place particular emphasis in this chapter on the utility of developing adolescent ELLs' knowledge of academic words. We take this approach because there is much empirical evidence to inform the design of academic vocabulary instruction for secondary students and because the teaching of academic vocabulary serves as an entry point for educators into the teaching of AL (Nagy & Townsend, 2012). We conclude this chapter by delineating a literacy research agenda that will answer the pressing questions posed by educators and policymakers.

2 Who Are Adolescent English Language Learners (ELLs)?

2.1 ELLs in the U.S. Secondary School Context

In industrialized countries worldwide, the population of children growing up in linguistically diverse homes is increasing (UNICEF Innocenti Research Centre, 2009), and the U.S. is no exception. Here in the United States, the past several decades have seen a dramatic increase in the number of school-age children from homes where English is not the primary language. Between 1980 and 2009, this population of children rose from 4.7 to 11.2 million youths, or from 10 to 21 % of the school-age population (Aud et al., 2011), with the greatest growth occurring in our

secondary schools (Garcia & Cuellar, 2006). The term, *English language learner* or ELL, refers broadly to students in our schools who, because of their English proficiency levels, need specialized language support to access the curriculum. The design of these specialized language supports has been hindered, however, by the monolithic portrayal of this population in the literature coupled with the failure to acknowledge the staggering diversity in resources available to meet the needs of these students in different educational contexts (Menken, Kleyn, & Chae, 2012).

The ability of schools to serve these learners is likely variable given the noteworthy state-to-state and region-to-region differences that underlie these population trends. For example, while the vast majority of ELL youths live in California, Texas, New York, Florida, and Illinois, population growth rates of ELLs have been relatively stagnant in those states. In contrast, historically more linguistically homogeneous states—those where there is limited existing infrastructure within schools to meet this population's needs—are experiencing the greatest growth. For example, between 1995 and 2005, the school-age ELL population increased by 301 % in Nebraska, 295 % in Arkansas, and 208 % in Nevada (Batalova & McHugh, 2010).

Of particular relevance for efforts to craft educational programs and services, the degree of linguistic heterogeneity among non-English speaking homes differs across states. In homes where English is not the primary language spoken, the most common home language is Spanish within the overall ELL population (73 %) (Batalova & McHugh, 2010). The remainder of this school-age population of learners together speaks 1 of 440 other languages (Batalova & McHugh, 2010). For illustration, in seven states Spanish is not the predominant language spoken at home by ELL learners. In five of these states (i.e., Montana, North Dakota, South Dakota, Hawaii, and Alaska), the largest group of the non-English speaking population speaks an indigenous language. In the remaining two states, Maine and Vermont, the most common languages spoken are Somali and Bosnian, respectively, reflecting our recent geopolitical history (Batalova & McHugh, 2010). Thus, some schools serve large numbers of students with similar linguistic histories and are able to readily employ staff who, as speakers of the languages students speak at home, can leverage these learners' linguistic resources instructionally to promote literacy development; this is, however, not the case in all schooling contexts.

Schools today also face additional challenges in serving these learners and their monolingual peers—many of whom are growing up in homes where access to financial resources is limited. Poverty is linked poor reading outcomes in monolingual populations, who despite having a host of colloquial language resources, have been documented to have fewer opportunities to be exposed to and to practice using the language of school texts and of academic discourse (Corson, 1997; Heath, 2012). Today, poverty is on the rise in the U.S. where 22 % of all children live in poverty, up from 18 % in 2007 (Lopez & Velasco, 2011). Children of immigrants, however, are disproportionately impacted by this growing trend. Taking the case of the large and growing Latino population—a population that has accounted for 56 % of the nation's growth in the last two decades—approximately 1 in 3 Latino children is raised in poverty, and many of these students enter school with limited proficiency

in conversational English and, like their monolingual English peers, may rely on teachers and classrooms for exposure to academic English (Lopez & Velasco, 2011).

Schools, are positioned as powerful mechanisms in supporting these learners given that more than half of the population of ELLs in our schools have received all of their formal education in the U.S., most beginning in kindergarten (Capps et al., 2005); in fact, the two fastest growing subpopulations of ELLs in the United States are students who immigrated before kindergarten and U.S.-born children of immigrants (Batalova, Fix & Murray, 2007; Capps et al., 2005). Yet, our schools need additional guidance and support to meet the needs of these learners as evidenced by the numbers of students entering into our secondary schools with the designation of 'Long-Term ELLs (LTELLs)' despite having received all of their formal education in English (Menken et al., 2012; Olsen, 2010). These students, who have been educated in the U.S. schooling system for 7 years or more and continue to require language support, are often proficient oral conversationalists; but lack the advanced literacy skills needed to keep pace with their middle grade, monolingual English peers (Cosentino de Cohen, Deterding, & Clewell, 2005).[2] This paradox, often puzzling to secondary educators, has situated these LTELLs as a silent majority within the ELL student population at the secondary level in many states (Menken et al., 2012; Olsen, 2010).[3] In this chapter, while we acknowledge the challenges faced by teachers and by schools in supporting growing numbers of ELLs to acquire advanced literacy skills, we also remind ourselves of the promise of bilingualism in relation to cognitive and literacy development.

2.2 ELLs as Bilinguals and Multilinguals

Some adolescents are *simultaneous bilinguals*, meaning that they speak both English and Spanish or another language at homes and are in the process of learning both languages at once. Others are *sequential bilinguals*, in which case they are from homes where they and their families almost exclusively speak their native language and they are fluent in their first language and are learning English as a second or additional language. Regardless of whether English acquisition is occurring simultaneously or sequentially, it is important to remember that second language acquisition is an *uneven* process (Bialystok, 1991) and depends upon many contextual factors—personal (age, time in the U.S., parental language skills, exposure to English in informal settings) and academic (exposure to English at school, school quality) (Goldenberg, Rueda, & August, 2006; Páez, 2001).

[2]LTELL is an administrative term used by many districts nationwide.

[3]LTELLs comprised nearly 59 % of students in 40 school districts in California according to Olsen (2010), one-third of ELLs in secondary school in New York City, and 23 % of the ELL population ins Chicago's secondary schools (Menken et al., 2012).

In the latter half of this chapter, we place a particular emphasis on one academic factor known to impact bilingualism and to be malleable: exposure to and opportunities to use academic English within the social context of school (Jia & Aaronson, 2003; Valdés, 2001). Because bilingual adolescents navigate many social contexts (home, school, peer groups, etc.) and employ English as well as one or more additional languages in these settings, their relative proficiency in English and the other languages in their repertoire can fluctuate depending on the topic. For illustration, having learned about photosynthesis in science in English may support proficient discussion of this phenomenon in the language of instruction—but not in another language despite having a rich understanding of what photosynthesis entails. Analogously, some ELLs have participated in formal schooling in their sending countries and, so, bring developed background knowledge of curricular content and of the routines of schooling, albeit acquired in a language other than English. The task for these learners is to map the English words to content, some of which may have been taught in a previous school context, and to acquire an understanding of schooling in the U.S. classroom (Freeman, Freeman, & Mercuri, 2002). Learners from sending countries that lack educational infrastructure may have received very little formal education prior to enrolling in U.S. schools, so they face the three-fold challenge of acquiring English for social communication and academic learning as well as becoming acquainted with formal schooling's processes and routines. Given our focus on adolescent ELLs, we would be remiss in failing to acknowledge the role of learner agency in English exposure and usage in the school context (Jia & Aaronson, 2003). We situate adolescents as active (rather than passive) agents in the process of becoming bilingual (or multilingual) and suggest that this is an important developmental factor to consider when designing instruction.

3 Our Focus

It is beyond the scope of a single chapter to address the needs of the entire adolescent, school-aged ELL population given the incredible diversity that characterizes this group. Therefore, in this chapter focused on ELLs' reading comprehension, we use the term, *ELL*, to solely refer to the learners of English as an additional language in our middle and high school mainstream classrooms who (regardless of official English proficiency designation or classification) have acquired interpersonal English skills; but lack the English language knowledge to comprehend the complex texts from which they are expected learn (August, Carlo, Dressler, & Snow, 2005). We focus on these students because we believe that every educator in every secondary school classroom, regardless of content area, likely encounters adolescents who fit this profile each day and wonders how best to teach them. Furthermore, elucidating the struggles of these particular learners—many of whom have received their entire education in U.S. schools—helps us to set an instructional agenda to address the weaknesses in how we have structured learning opportunities

for these students to date. New approaches to the education of adolescent ELLs are necessary because prevailing models have led to reading comprehension outcomes for English Language Learners that persistently lag behind the national average.

4 Why Is Reading in Middle School and Beyond Challenging for ELLs and Their Peers?: Reading Comprehension Unpacked

For those reading this chapter, we define reading comprehension as a process through which a reader constructs a mental schema, or representation, by integrating the information presented in a text with her own prior world knowledge—of content and language (Duke & Carlisle, 2011; Hock, Brasseur-Hock, & Deshler, chapter, "Reading Comprehension Instruction for Middle and High School Students in English Language Arts: Research and Evidence-Based Practices", this volume; Kintsch, 1998; Snow, 2002). While the other chapters in this book highlight the nuances of comprehending disciplinary texts; we focus in this chapter on the reading comprehension development of adolescent ELLs and elucidate the potential sources of difficulty these students encounter as they are confronted with complex texts in all content area classrooms. As in the other chapters of this text, we begin by describing generally the multiple skills that comprise reading as well as the nature of reading development to provide readers a context for understanding the particular challenges faced by adolescent ELLs as they attempt to make meaning from complex texts. Specifically, we suggest that for all students-regardless of English learner status-learning to read is a *dynamic* and *cumulative* activity. Building upon the foundations of early reading skill, readers in each successive grade must develop new *skills* and *knowledge* if they are to successfully make meaning of the increasingly challenging texts that comprise the core curricula. For ELLs, these challenges are compounded by the varying degrees of familiarity they may have with English as the language of instruction in our schools and, in particular, with the academic language found in the textbooks, novels, and newspaper articles from which students are tasked with learning in their classrooms.

4.1 Foundational Understanding 1: Reading as Dynamic and Cumulative

For all learners, including ELLs, the process of reading development is both *cumulative* and *dynamic* (RAND Reading Study Group, 2002). Never complete, reading development begins at birth and continues through adulthood. *Reading* at age 3 is not the same as reading at age 5; reading for a 9 year-old at school is different

from reading at age 14 in the content area classroom. It is only by accumulating skills, knowledge, and reading experiences that the adolescent reader is able to keep pace with the changing demands of the curriculum and the proliferation of purposes for reading, ultimately enabling continued academic success. The successful adolescent reader not only deciphers words on a page, but also draws on knowledge (sometimes referred to as *background knowledge* or the *reader's schema*) to assess, evaluate, and synthesize the information presented in the text (RAND Reading Study Group [RRSG], 2002). Often asked to respond orally and in writing to complex questions that can only be answered by integrating ideas from multiple sources (e.g., texts, media sources, the reader's relevant prior experience), successful readers access and apply knowledge from multiple disciplines that has been acquired over time and by reading a variety of texts. In secondary contexts in particular, reading is a central mechanism for acquiring knowledge of content and language. Reading skills are, in fact, the foundation for learning across all academic domains, including math, science, and social studies (Graves, Juel, & Graves, 1998).

By middle school, the numbers of opportunities that students have had to accumulate knowledge of how to read at school, of the topics that comprise the middle grade curriculum, and of the language through which these topics are communicated vary widely. As alluded to above, for ELLs, these differences are particularly salient. Whereas some ELLs have had few chances to participate in formal schooling before entering U.S. schools, other ELLs bring rich knowledge of school-relevant reading practices acquired in a first language (referred to as an L1) that may be transferable to the task of learning to read English texts. Knowledge of the purposes for which we read at school and of the strategic processes involved in reading acquired in a first language inform how learners approach texts and support ELLs in acquiring academic literacy skills in English. However, educators should be mindful of the reality that the majority of ELLs in our schools today are U.S.-born and have received all of their formal education in U.S. schools. If we conceptualize reading development as the sum total of a reader's experience transacting with text, the prevalence of long-term ELLs documented to struggle with understanding what they read in middle school provides urgency around the need to examine the cumulative instructional opportunities provided to these learners in our schools (Menken et al., 2012; Olsen, 2010).

4.2 Foundational Understanding 2: Reading Comprehension Draws on Skills-Based and Knowledge-Based Competencies

Reading comprehension is not a unitary skill; numerous separate but related competencies support the comprehension of text. Broadly speaking, we classify these competencies as either *skills-based competencies* or *knowledge-based competencies* (Paris, 2005; Snow & Uccelli, 2009). The mechanics of reading or *skills-based*

competencies are those that allow students to read words accurately and efficiently by mapping letters onto their respective sounds in combinations. For example, to read accurately students must know the full array of sound-symbol relations using the 26 letters and approximately 44 sounds in the English language. These skills are highly susceptible to instruction, learned in the primary grades by the average learner and, for the vast majority of students, are not a lasting source of difficulty after Grade 3 (Chall, Jacobs, & Baldwin, 1990). In contrast, *knowledge-based competencies* involve the range of skills and knowledge necessary for understanding what is being read. To make meaning from any text, the reader needs (at a minimum) relevant background knowledge related to the text's vocabulary, topic, and structure (Berninger & Abbott, 2010; Catts, Adlof, & Weismer, 2006; Mancilla-Martinez & Lesaux, 2011; Snow & Uccelli, 2009). In contrast to skills-based competencies, these knowledge-based competencies are much larger developmental- and instructional-"spaces" and include the constellation of skills more directly related to comprehension and, as such, comprehension difficulties (Chall et al., 1990; Paris, 2005; Snow & Kim, 2007). In fact, these knowledge-based competencies are key sources of lasting individual differences in reading ability and are fundamentally important to the comprehension of the texts students read in the secondary school context (Anderson & Freebody, 1983; Catts, Fey, Zhang, & Tomblin, 2001; Catts & Kamhi, 2005; Hock et al., 2009; Snow & Kim, 2007).

In particular, in this chapter, we place a heavy focus on students' knowledge of the academic vocabulary that appears in complex texts as an important knowledge-based competency that mediates text comprehension. While accelerating the literacy growth of ELLs requires a multifaceted approach, the research has coalesced on the notion that comprehension instruction should bolster students' knowledge of specialized vocabulary and language structures (both sentence and text structures) found in academic text and discourse, known as *academic language* (AL). Defined by Nagy and Townsend (2012) as the, 'specialized language, both oral and written, of academic settings that facilitates communication and thinking about disciplinary content (p. 92),' AL is a functional tool that allows for discussion and reflection on the types of complex ideas and phenomenon that comprise the middle grade curricula. Such language is an essential tool for reading, writing, and critical thinking, and one that presents a particular source of difficulty for many students, including ELLs.

4.3 Concretizing Skills- and Knowledge-Based Competencies: How Do We Read Academic Text?

To concretize the multi-componential nature of reading, we turn to an excerpt from the Common Core State Standard's exemplar texts (2010)—one that contains many of the features generally found in academic texts—and examine how an adolescent reader might brings to bear code- and meaning-based skills when reading this text.

> From the meanderings of a pond's edge to the branching of trees and the intricate forms of snowflakes, shapes in nature are often more complicated than geometrical shapes such as circles, spheres, angles, cones, rectangles, and cubes. Benoit Mandelbrot, a mathematics professor at Yale University and an IBM fellow, was the first person to recognize how amazingly common this type of structure is in nature. In 1975, he coined the term fractal for shapes that repeat themselves within an object. The word fractal comes from the Latin term for "broken." In 1904, long before Mandelbrot conceived of fractals, Swedish mathematician Helge von Koch created and intriguing but puzzling curve. It zigzags in such an odd pattern that it seems impossible to start at one point and follow the curve to reach another point. Like many figures now known to be fractals, Koch's curve is easy to generate by starting with a simple figure and turning it into an increasingly crinkly form.[4]

4.3.1 Skills-Based Competencies

To skillfully read even this short excerpt, an adolescent reader may make use of a host of skills-based competencies. Perhaps when this reader's eyes move across the words in this passage, many are known to her by sight. For this reader, little cognitive energy will be expended on the task of reading a word whose meaning, spelling, and pronunciation are already linked in the reader's memory (Ehri, 2005). For the majority of middle graders, words that are commonplace in the books read in primary school are automatically read as units. For instance in the passage above, *from* and *the* are sight words often mastered in kindergarten; but, words like *recognize* or *person* should not be assumed to be part of the typical middle grader's sight word repertoire (LaBerge & Samuels, 1974). We would expect that most adolescent readers may be unfamiliar with at least some of the words in the passage, and so, will need to make use of word reading strategies (i.e., decoding, analogizing, or predicting; Ehri, 1991). To decode, a reader must be able to map sounds onto letters (for example, /t/ /r/ /ee/ /s/) and blend these to form a word, or when reading longer words, manipulate chunks of letters and blend these syllabic units into familiar words (e.g., me · an · der · ings; Ehri, 1991). In a process referred to as *analogizing*, this reader may make use of a word she already knows to read a new word with the same spelling pattern (or rime). For instance, using the known word *wrinkly*, to read the unknown word *crinkly* in the text above (Goswami, 1986). Finally, this reader might use context and letter clues to guess an unfamiliar word (Tunmer & Chapman, 1998). With comprehension as the end goal, this student must also read the text quickly enough so that she is able to hold in mind the information read at the beginning of the text until she reaches the last sentence. At the end of eighth grade, it is documented that a student must correctly read at least 140 words a minute or be able to read this passage in a little over 60 seconds.

[4]Peterson, I., & Henderson, N. (2000). *Math Trek: Adventures in the Math Zone*. San Francisco: Jossey-Bass.

4.3.2 Knowledge-Based Competencies

Although necessary, skills-based competencies are not enough to glean meaning from text. Knowledge-based competencies, including understanding a word's meaning in the context of the passage and other relevant academic language skills also play a role in text comprehension. Adolescents, including many classified as ELLs, have command of conversational English. Nevertheless, these proficient conversationalists often have had few opportunities to acquire the more precise and succinct academic language found in school texts (Fang & Schleppegrell, 2010; Schleppegrell, 2004; Schleppegrell, Greer, & Taylor, 2008). For instance, the word *forms*, used here as a noun, may confuse this adolescent reader if she is only familiar with the verb *to form*, which is common in oral school discourse (as in "to form a group"). The disciplinary vocabulary found in content area writing also represents another stumbling block for the prototypical adolescent, words like *geometrical* and *fractal* in this excerpt (see chapters "Reading History: Moving from Memorizing Facts to Critical Thinking", "Reading Mathematics: More than Words and Clauses; More than Numbers and Symbols on a Page", "Understanding Causality in Science Discourse for Middle and High School Students. Summary Task as a Strategy for Improving Comprehension", and "Reading Comprehension Instruction for Middle and High School Students in English Language Arts: Research and Evidence-Based Practices"; Phillips Galloway, Lawrence, & Moje, 2013). Knowledge of word meanings may certainly be augmented by knowledge of meaningful word parts (i.e., root words, suffixes, and affixes); for instance, this reader may draw her knowledge of *–ian* in *mathematician* to infer that this term means, "someone who does math" (Kieffer & Lesaux, 2010).

This adolescent reader may also use prior knowledge of how texts are constructed by writers and of the topic generally to make sense of this text. Knowledge of phrases commonly used by writers to signal how sentences and ideas relate, known as 'connectives' or 'discourse markers,' support a reader's comprehension of academic texts. However, when these phrases are unfamiliar, they do little to support text processing (e.g., "such as" in the phrase "geometrical shapes *such as* circles, spheres, angles" cues the reader to recognize that the author is enumerating examples) (Crosson & Lesaux, 2013b). This reader may also access her knowledge of sentence structures typical of academic texts. For instance, she may recognize the authors' use of a common strategy for embedding a definition of a newly introduced term within a text (e.g., "...he coined the term fractal for shapes that repeat themselves within an object."). This student may also recall and use relevant background knowledge, such as conceptual knowledge of the work of mathematicians or the visual image of a fractal, to fully understand the passage. Reading disciplinary texts, in particular, poses challenges to adolescent readers, who often do not bring the elaborate schema of background knowledge that an expert reader might, and so, must construct this understanding from scratch or by relying on incorrect knowledge, thus further impeding comprehension (Graesser & McMahen, 1993; León & Escudero, chapter, Understanding Causality in Science

Discourse for Middle and High School Students. Summary Task as a Strategy for Improving Comprehension, this volume; Otero & Kintsch, 1992).

Finally, this excerpt is a very short segment of a much longer text. To read the entirety of this text, this adolescent reader must have the motivation and interest to persevere as well as the cognitive strategies to monitor her understanding of the text and to repair misunderstandings that arise when reading. The challenge of reading this passage is, of course, compounded by the need to carry out all of these reading processes simultaneously. Given the integrated nature of the reading process, in which skills-based and knowledge-based competencies operate in tandem, educators reading this chapter may question why we distinguish the two. However, readers of this chapter will find, that this distinction is meaningful for thinking about reading instruction as it relates to students from low-income and non-English-speaking homes for whom knowledge-based competencies tend to be the prevailing source of difficulty (Paris, 2005; Snow & Uccelli, 2009).

5 Unpacking Sources of Reading Comprehension Difficulty for Adolescent ELLs

5.1 Foundational Understanding 3: Knowledge-Based Competencies, Especially Academic Language, Are a Source of Difficulty for ELLs and Many of Their Classmates

A recent wave of developmental research clearly demonstrates the challenges faced by the growing population of students who enter school with limited proficiency in English (Carlisle, Beeman, Davis, & Spharim, 1999; Carlisle,Beeman, & Shah,1996; Leu, Kinzer, & Hinchman, 1996; Jiménez, García, & Pearson, 1996; Lesaux & Kieffer, 2010; Mancilla-Martinez & Lesaux, 2011; Proctor et al., 2005). However, code-based skills development does not appear to pose difficulty for most ELLs. That is, by the end of second grade, with adequate instructional opportunities, most of the school-age population has sufficient knowledge of letter-sound correspondences and, as a result, has the basic ability to decode printed words (Betts, Bolt, Decker, Muyskens, & Marston, 2009; Geva & Yaghoub Zadeh, 2006; Jean & Geva, 2009; Lesaux et al., 2006; Lesaux, Crosson, Kieffer, & Pierce, 2010; Lesaux, Rupp, & Siegel, 2007; Mancilla-Martinez & Lesaux, 2011). In fact, multiple developmental studies suggest that ELLs master these skills within the same time frame as their peers from middle-class, majority-culture backgrounds (August & Shanahan, 2006; Betts et al., 2009; Geva & Yaghoub Zadeh, 2006; Jean & Geva, 2009; Lesaux et al., 2007; Lesaux & Kieffer, 2010).

By contrast, knowledge-based competencies, those competencies more directly related to comprehension, appear to be persistent sources of difficulty for many

ELLs and their peers from low-income households (Betts et al., 2009; Geva & Yaghoub Zadeh, 2006; Hock et al., 2009; Lesaux & Kieffer, 2010). For example, a recent study of sixth grade readers enrolled in 26 classrooms in a large, urban district examined the nature of reading comprehension difficulties in adolescent populations. When comparing the sources of difficulty for struggling readers from non-English speaking homes to those from monolingual English speaking homes, the researchers found more similarities than differences. For the sample studied, low-vocabulary knowledge was a profound source of difficulty across linguistic groups, who both consistently evidenced reading comprehension abilities below the national average (Lesaux & Kieffer, 2010). Given these data, some educators reading this chapter may question whether these students may also lack knowledge of comprehension strategies. However, a recent in-depth qualitative comparison of adolescent non-native English speakers, who were U.S.-born and educated, and their native English-speaking classmates demonstrated that both groups were aware of key elements of text known to influence comprehension and were actively attempting to make use of comprehension strategies but were stymied in their text comprehension efforts by relatively low-knowledge of language and vocabulary (Lesaux, Gamez & Anushko, under review). In the absence of adequate knowledge of vocabulary, applying strategies (re-reading, summarizing) did little to support their successful comprehension of the text.

These studies are not to suggest that there are no readers in the secondary classroom that face difficulties developing skills-based competencies. For example, there is a subpopulation of students who may benefit from support developing decoding skills. However, educators should be mindful that this is not the typical ELL profile in the secondary context, and careful diagnostic assessment should be undertaken in order to identify the particular sources of difficulty a reader faces. In turn, teachers should respond with instructional strategies that address the identified need; however, this strategy instruction should also include a rich program of language and background knowledge development.

5.2 Foundational Understanding 4: On Average, ELLs' Rate of Reading Development Is Actually On Par with National Rates of Growth

Given the profound challenges that many ELLs face, educators often are left with the impression that negotiating two languages may compromise overall learning ability—that ELLs are not learning as quickly as their English-only peers. However, this appears not to be the case for the vast majority of ELLs. Despite reading performance levels that appear low, performance growth rates are encouraging for these vulnerable populations. In fact, studies suggest that, compared to the average U.S. monolingual English student, this population demonstrates

equivalent or slightly faster rates of growth in reading and reading-related skills, including vocabulary development (Kieffer, 2008, 2010; Mancilla-Martinez & Lesaux, 2011). By way of illustration, a 10-year longitudinal study following Spanish-speaking children from age 4 (U.S.-born children of immigrants recruited from Head Start centers) through early adolescence, found that both skills-based and knowledge-based reading competencies grew at a rate equivalent to that of the average U.S. monolingual English student (Mancilla-Martinez & Lesaux, 2011).

What, then, explains the finding that the average reading comprehension level by the end of middle school for ELLs (around the 30th percentile) persistently lags behind the national average for monolinguals? To answer this question, we must recall that reading is a cumulative skill and that adolescent literacy skills have their antecedents in early language skills and knowledge-building opportunities. For example, Kieffer's (2008) research using the nationally representative Early Childhood Language Study-Kindergarten (ECLS-K) found that children who entered kindergarten with lower proficiency in English than their age-matched, monolingual peers also had significantly lower scores in eighth grade, despite evidencing slightly faster rates of growth in English reading (Kieffer, 2008). Although children entering school with limited proficiency in English display age-appropriate (even relatively rapid) growth in reading achievement from early childhood through early adolescence, this growth is not enough to compensate for substantial early gaps in linguistic knowledge. Paradoxically, this suggests that while ELLs are swiftly acquiring the skills and knowledge necessary to read complex text, the rate of growth will need to be even faster—accelerated through instruction—if they are to keep pace with their monolingual peers.

6 What Are Some Research-Based Practices that Support ELLs' Literacy Development?: A Focus on Academic Vocabulary Instruction

One mechanism through which educators may support adolescent ELLs to become proficient readers is by bolstering their knowledge of academic language (AL). Rarely used in oral language, AL appears more frequently in complex texts. In contrast to conversational English, we find that academic texts contain more nouns, adjectives and prepositional phrases; verbs or adjectives used as nouns (to destroy → destruction); words and phrases that connect ideas within sentences ('therefore,' 'for example'); more pieces of information in each sentence; and—most relevant for this chapter—a higher proportion of longer, abstract words often derived from Latin (known as academic vocabulary) (Biber, 2006; Snow & Uccelli, 2009). The primary vehicle of AL exposure for adolescents is via complex text; but,

given the high prevalence of struggling readers within the ELL population, we have reason to believe that these opportunities may be uncommon. This, of course, does not have to be the case.

While AL instruction is gaining momentum, it is only just beginning to amass empirical support for bolstering language ability, reading comprehension levels, and content area knowledge (August, Branum-Martin, Cardenas-Hagan, & Francis, 2009; Carlo et al., 2004; Lesaux & Kieffer, 2010; Lesaux, Kieffer, Faller, & Kelley, 2010; Proctor et al., 2011; Snow, Lawrence, & White, 2009; Townsend & Collins, 2009; Townsend, Filippini, Collins, & Biancarosa, 2012; Uccelli et al., 2014; Vaughn et al., 2009). Therefore, we focus in this chapter on one facet of AL teaching for which the most empirical evidence has been amassed: academic vocabulary instruction. Our focus on academic vocabulary is not to suggest that other features of AL do not play a fundamental role in disrupting the text comprehension of adolescent readers (see, for instance, Beers & Nagy, 2011; Crosson & Lesaux, 2013a; Uccelli et al., 2014). Rather, we focus on academic vocabulary because the field now has a clear understanding of how this instruction might progress from multiple intervention studies (August et al., 2009; Lesaux, Kieffer, Faller, & Kelley, 2010). Furthermore, we view academic vocabulary instruction as a natural and manageable entry point into AL teaching for educators, one that can serve as an anchor for building knowledge-based literacy competencies through sustained instruction across the grades (Nagy & Townsend, 2012; Snow & Kim, 2007).

6.1 Beyond 'Instruction as Usual': Avoiding Potential Pitfalls

The type of instruction that ELLs need to bolster their AL skills is not business as usual in the average U.S. classroom—whether in elementary or secondary settings. To date, reading comprehension instruction has often focused on developing a set of reading strategies that support text comprehension (e.g., re-reading, summarizing, self-questioning) (Dewitz, Jones, & Leahy, 2009). While these strategies seek to mimic the processes engaged in by mature readers, a body of growing evidence suggests that teaching only these skills fails to properly acknowledge the repertoire of additional skills—including knowledge of academic language—that successful readers draw upon when comprehending a text. A mixed-methods study conducted with 41 sixth and seventh grade ELLs sheds light on how strategy use during the reading process unfolds for this group of readers who demonstrate below average scores on assessments of reading comprehension and vocabulary knowledge (Harris & Lesaux, 2014). Based on students' responses during semi-structured interviews focused on their reading of a particular passage, findings illustrated how the participants engaged in an active reading process. Students described using a suite of strategies such as constructing inferences about the passage's content and connecting what they knew ('background knowledge') to what appeared in the passage. Despite this active-learner stance, participants tended to construct inappropriate and/or inaccurate representations of the text. The authors

interpreted these results as suggesting that the value of reading strategies was better realized when other components of reading comprehension, including vocabulary and content knowledge, were similarly well developed.

Yet, evidence suggests that vocabulary knowledge is rarely systematically (or comprehensively) taught in secondary school classrooms. In the average classroom, there is very little instructional time allocated to building vocabulary through explicit teaching and to developing oral language skills (Carlisle, Kelcey, & Berebitsky, 2013; Lesaux, Kelley, & Harris, 2015). This is made evident by a recent study examining standard practice in 26 middle school English Language Arts classrooms in a large urban district serving large numbers of ELLs. The authors found that across hundreds of hours of instruction, a very modest amount of time was devoted to vocabulary teaching (8 %) or to rich oral language development (6 %) (Lesaux et al., 2015). When vocabulary instruction did occur, the words taught were overwhelmingly of two types: rare words unlikely to be encountered again with much frequency (e.g., gossamer, somnolence) and content-specific words (e.g., protagonist, tone, mood). Unquestionably, the teaching of content-specific words, often called Tier 3 words (Beck, McKeown, & Kucan, 2002), is an important and entrenched component of supporting students to engage as members of a disciplinary discourse community. However, the teaching of general service academic words, which are a ubiquitous feature of the texts read in all content areas, was markedly absent in these classrooms, although knowing these words facilitates students' understanding of the content-specific words that they surround in text. In fact, we now have ample research to suggest that students' knowledge of general service academic words (e.g., therefore, argument, benefit, role) supports the development of advanced literacy skills (Corson, 1997; Snow et al., 2009; Townsend et al., 2012).

Thus, the challenge facing educators and administrators is to first set an instructional agenda that will accelerate the reading comprehension growth of adolescent ELLs and their classmates and, then, shift current instructional practices. While the tendency may be to respond using the traditional tools and practices, such as teaching academic word lists or adding short blocks of isolated word study, this chapter suggests that a much more systemic response is needed. In particular, we suggest that ELLs benefit from classroom contexts that are oriented towards building knowledge and which recognize that purposeful, targeted academic language development is a necessary component of this instruction.

6.2 What Do We Know About Teaching Academic Vocabulary?

The past decade has seen a relative surge in research that aims to identify instructional mechanisms to accelerate the reading comprehension of adolescent ELLs who are struggling readers (see for example, August et al., 2009; Carlo et al., 2004; Kim et al., 2011; Lesaux, Kieffer, Faller, & Kelley, 2010; Lesaux, Kieffer, Kelley, & Harris, 2014; Lubliner & Smetana, 2005; Snow et al., 2009; Vaughn et al.,

2009). These approaches focus on providing students with deep, language- and content-based instruction with a emphasis on teaching both specialized vocabulary and the specialized structures of language that are found in academic speech and text (i.e., AL). In most cases, these interventions have taken a classroom-wide, universal approach and have been conducted in urban, underperforming schools. That is, they are predicated on developmental data that suggest academically at-risk adolescents, both English-only and ELL students who have been enrolled in U.S. schools for the majority of their formal schooling, would benefit from targeted AL instruction.

Collectively, these intervention studies focus on students from fifth through eighth grade and ranged in duration from 5 weeks (Townsend & Collins, 2009) to 24 weeks (Snow et al., 2009). Although seven interventions were implemented as part of a single subject area's instructional core (i.e., ELA, science, or social studies) (August et al., 2009; Lesaux & Kieffer, 2010; Carlo et al., 2004; Dalton et al., 2011; Lubliner & Smetana, 2005; Proctor et al., 2011; Vaughn et al., 2009), one was designed as a cross-disciplinary initiative to teach a daily vocabulary lesson once in each subject area classroom throughout the week (Snow et al., 2009), and one tested the effects of an afterschool vocabulary intervention (Townsend & Collins, 2009). To date, these intervention studies suggest that such instruction can accelerate vocabulary development as assessed by curriculum-based measures of words taught as well as, to a lesser degree, reading comprehension as measured by norm-referenced assessments (e.g., Lesaux, Kieffer, Kelley, & Harris, 2013; Kim et al., 2011; Vaughn et al., 2009).

6.3 What Are the Promising Practices that Come Out of This Research?

Drawing from Nagy and Townsend (2012), we assert the end goal of academic language instruction is not simply to teach words. Instead, we view this instruction within a much broader frame and suggest that the goal of AL instruction is to equip students with the linguistic tools they need to acquire and express knowledge. To design this instruction, the field has frequently drawn upon principles of vocabulary teaching from work with young monolingual English speakers. This practice is uncontroversial given the findings from six of the seven studies described above examining whether language status was related with treatment effects. These studies found that the interventions were equally effective for ELLs and English-only learners (August et al., 2009; Carlo et al., 2004; Dalton et al., 2011; Lesaux & Kieffer, 2010; Proctor et al., 2011; Vaughn et al., 2009). This points to the potential of adopting principles of vocabulary instruction deemed effective with English-only learners in classrooms that serve linguistically diverse students. The principles of effective vocabulary instruction operationalized in these recent interventions are not novel, having been first articulated in Stahl and Fairbank's (1986) meta-

analysis examining the relationship between vocabulary instruction and reading comprehension. They identified three central components of these curricula:

- teaching a word's definitional and contextual information
- promoting deep processing
- providing multiple encounters with target words.

6.4 *Academic Vocabulary Instruction: The* What *and* How *of Effective Instruction from the Intervention Literature*

However, to understand how these general principles have been operationalized instructionally, we turn to the intervention literature to highlight a series of concrete practices that provide educators the *what* and *how* of efficacious academic vocabulary instruction.

6.4.1 What

Often in our work with educators, we encounter two common queries that speak to the *what* of vocabulary instruction: 'which words should I teach? And, how many words should I teach?' Although there is no simple answer, there is a general consensus that to truly know a word, its forms, how to use the word in context, how the word is related to and used with other words in formulaic ways, and the word's metaphorical uses requires that students are exposed to and offered opportunities to produce the word multiple times in rich contexts and for authentic purposes (Beck & McKeown, 1991; Graves, 2000, 2006; Nagy & Townsend, 2012; Stahl & Nagy, 2006).

In contrast to teaching many words each week, commonly selected from a word list, research suggests teaching that preferences depth over breadth by focusing on a small number of high-utility words is what best serves ELLs and their peers. For instance, focusing on 7–10 words as part of a week-long instructional cycle is not uncommon in successful interventions (Beck et al., 2002; Graves, 2000, 2006; Stahl & Nagy, 2006). By *high-utility* we mean those words that deliver information to readers and must be understood to access the content-specific language that all middle grade texts contain, words such as *analyze* or *theory* (Hiebert, 2005; Nair, 2007). In fact, it has been argued that processing and expressing disciplinary ideas and abstract phenomena are not possible without knowledge of academic language, and so content area teachers of adolescents may view this high-utility academic language instruction as a fundamental part of larger knowledge-building agenda (Nagy & Townsend, 2012). It is in this sense that AL words become, as argued by Nagy and Townsend, tools for communication and comprehension. This focus on high-utility AL is not in opposition to the teaching discipline-specific AL, where the emphasis is on increasing adolescents' facility with the language that is unique

to math, science, or history; rather it is complementary (August et al., 2009; Brown, Ryoo, & Rodriguez, 2010; Vaughn et al., 2009).

6.4.2 How

The intervention research reviewed not only speaks to what academic vocabulary we should teach, but also to the guidance in *how* educators might teach it. In particular, effective academic vocabulary interventions begin by situating word learning within the context in which the words are used, often by reading an engaging text or series of texts on a topic and by providing oral and written language activities (Kelley et al., 2010; Fang & Schleppegrell, 2010; Snow et al., 2009). Language selected as instructional targets appears recurrently in the unit as an artifact of the utility of this vocabulary for communicating the content, and so opportunities to practice using this language when reading and writing are widespread through the unit of study. Often situated around a key question that students were motivated to debate or answer, these units of instruction replicate realistic conditions for word usage and also attend to the developmental needs of adolescent learners (e.g., providing choice, autonomy in carrying out their work in groups, and the opportunity to take a stance). These incidental, authentic exposures and spontaneous opportunities for word usage are balanced with explicit teaching of word meanings and the intentional and systematic support for students to use the target language (Lesaux et al., 2010; Snow et al., 2009; Townsend & Collins, 2009). This explicit teaching commonly occurs by using the same learning activities over multiple instructional units such as procedures for defining words, personalizing word meanings, and engaging in word play routines (Kelley et al., 2010; Snow et al., 2009; Townsend & Collins, 2009). Using the same learning activities over time, but with different content and words, gives students the chance to learn the material without also having to learn the routine. Finally, these interventions go beyond simply teaching words—they also provide students with instruction that supports their independent word-learning by teaching morphology skills or the use of context clues to determine a word's meaning (Kelley et al., 2010).

7 What Should the Research Program of Tomorrow Look Like?: Future Research on Adolescent ELLs' Literacy Skills

The research reviewed and discussed provides a starting point to advancing this population's academic outcomes. However, we now turn to describing a much needed literacy research agenda that will continue to answer the pressing questions posed by educators and policymakers. Further research is particularly pressing as the knowledge and literacy demands of the twenty-first century continue to increase. This is reflected in the current college and career readiness standards,

which mandate that instruction attend to the inherently complex challenge of building students' knowledge of content and language. To that end, the field would benefit from a research agenda driven by the goal of learning how to build ELLs' knowledge--based literacy competencies in the service of improved outcomes. To do so requires explicit attention to their academic language skills across all years of schooling. Specifically, we focus on the need to advance the current research base in at least two ways: (1) continuing to empirically describe typical and atypical reading development among ELLs; (2) empirically describing characteristics of standard instructional practice and effective acceleration/intervention efforts.

7.1 Typical and Atypical Reading Development Among ELLs

By continuing to describe typical and atypical reading development among ELLs, we will further generate a knowledge base about the science of reading that matches today's demographics and, in turn, be able to design even more targeted instructional approaches. To date, models of reading comprehension are predicated on an understanding of reading development for monolingual readers, who have linguistic histories unlike their ELL peers. Thus, developmental studies focused on ELLs may aid the field in rethinking theories of reading comprehension for these at-risk populations, beginning with the delineation of skills-based and knowledge-based competencies. In particular, we have only just begun to explore the broad constellation of language skills—beyond academic vocabulary knowledge—that together comprise 'academic language proficiency' (Crosson & Lesaux, 2013a; Uccelli et al., 2014). These cross-sectional studies suggest that other sub-components of English language comprehension like knowledge of syntax, morphology, text structure, and connectives (among other linguistic skills) are, like academic vocabulary knowledge, linked with reading comprehension outcomes. Certainly, this is what we might expect given that all of these features operate in synchrony to support academic communications—and, so, must also be comprehended in synchrony by readers (Uccelli et al., 2014). Future studies should certainly continue this promising line of inquiry in broader populations of adolescents, including ELLs, and be expanded to include longitudinal samples. In addition, given the complexities of reading and the multi-faceted process that is demanded of students as they approach sophisticated texts, there is also a need for research to determine the socio-emotional characteristics and higher-order cognitive abilities that guide self-regulation, planning and complex thought for ELLs and monolinguals alike (Blair, 2002; Carlson & Meltzoff, 2008; Diamond, 2013; Raver, Gershoff, & Aber, 2007). Such reading component skill data could then inform assessment and instruction.

7.2 Standard Instructional Practice and Effective Acceleration/Intervention Efforts

In addition to a concerted effort to describe the development of reading comprehension competencies for adolescent ELLs, the field would benefit from research that continues to investigate standard instructional practices for student improvement. Bridging the gap between standard instructional practice and what our adolescent ELLs need to develop literacy skills that will provide a platform for academic success is particularly important. For example, many of today's instructional recommendations focus on bolstering language and knowledge development among ELLs, pointing to the promise of providing scaffolded learning opportunities via text-based discussions and analytic writing connected to text (see Snow et al. [2009] or Lesaux, Kieffer, et al. [2010] for examples). Conceptually speaking, by anchoring these classroom tasks in text, there are more opportunities to engage with and acquire content and knowledge, which, in turn, promotes language development. That said, such practices are not commonplace, and there is a dearth of empirical research that would inform the specific design and implementation of such practices. At the same time, advancing the existing academic vocabulary intervention research, to include more studies that are large-scale, implemented under typical conditions, and experimental in nature would help to further inform the design of instruction for ELLs. One strand of such research should be in the domain of content-based literacy instruction in the secondary school, focusing expressly on the language of text and addressing issues for math, science, and history teachers at all levels. In addition, we acknowledge the instructional approaches reviewed represent a step in the right direction but likely lack the intensity (e.g., dosage and duration) needed to augment existing outcomes and to fully prepare ELLs for the workplace or for higher education. A more universal, sustained, and classroom--based model from early childhood through adolescence remains a promising but untested approach.

Finally, although we tend to get focused on instructional strategies and curricula for maximum effect, the overall improvement effort needs to attend both to the instruction itself (e.g., programs and curricula) *and* foundational classroom and setting-level processes to augment the learning environment (e.g., quality of student-teacher interactions, quality of talk). Research needs to unpack the answers to a number of setting-level questions that remain before programmatic changes can take hold. For example, what school- and classroom-level conditions need to be in place for sustained improvement? Taking the case of a salient classroom level process, recent research has examined the quality of the classroom language environment via a measure that tracked the type and diversity of vocabulary used by teachers when speaking to students (Gámez & Lesaux, 2012). Indeed, even in the secondary school English language arts classroom, one of several classes a student attends each day, the quality of teachers' speech influences student reading comprehension over the course of an academic year, garnering effect sizes that parallel those from intervention studies (Gámez & Lesaux, 2012). The field would benefit from additional such studies on classroom processes that may be

levers for improvement and, especially, research that would uncover the kinds of teacher training and development that might improve teachers' ability to create the language-rich environment needed to bolster the reading skills of vulnerable populations.

8 Conclusion

The rapid growth of the ELL population, combined with the population's academic indicators, raises multiple questions for the field of education research to address. In this chapter, we described the ELL population and discussed what makes reading challenging for adolescent ELLs and many of their monolingual peers. We also reviewed the existing research to highlight the aspects of instructional initiatives to date that appear promising for fostering academic vocabulary and language development in the secondary school classroom. We focused on this domain because of the ways in which these knowledge-based competencies undergird text comprehension. The research reviewed and discussed provides a starting point to advancing this population's academic outcomes, but, as described, further research is needed to inform the design of effective instruction to support this growing, vulnerable population's reading comprehension skills and competencies.

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