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Impact of Escalating Literacy Demands on English Learners With Hearing Loss

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Gainful employment for adults in the United States currently requires high levels of literacy. As challenging as these requirements may be for the workforce at large, for adults who have a hearing loss (HL) and whose first spoken language is not English, the demands are especially problematic. Therefore, it is critical that educators prepare English learner (EL) K-12 students with HL for life beyond school by understanding and addressing the underlying language of curriculum. The authors explore the escalating literacy demands of the workforce and the corresponding spoken and written language demands of more rigorous K-12 curriculum standards. They highlight the specific challenges of EL children and adolescents with HL who are acquiring English as a second spoken language. They make the case for a more robust collaborative approach, involving multiple perspectives, rather than "teamwork," in addressing the needs of these students across the grades, with intercultural competence as a major component in engaging families as partners. **Key words:** *children and adolescents with hearing loss*, *collaboration in education*, *Common Core State Standards and D/HH*, *ELs with hearing loss*, *listening and spoken language in D/HH*, *literacy acquisition in D/HH*, *workforce literacy*

THE GOAL of preparing graduates of America's public schools to be college and career ready, given the workforce demands of our society, has resulted in increasing literacy requirements in elementary and secondary schools (Ehren & Murza, 2010). Although more robust literacy skills and strategies pose challenges for many students, there are specific populations for whom literacy proficiency has been especially problematic and will likely be more so with increased demands. Among these are students who have a hearing loss (HL) and those with hearing who are English learners (ELs). For students who are ELs and have a HL, the challenges are exponentially greater.

In this article, the authors discuss current workforce literacy requirements faced by EL adults with HL, the current employment picture, and the escalating K-12 language/literacy requirements geared to preparing a literate citizenry in today's world. This discussion provides the backdrop for exploring problems likely encountered by K-12 students who have HL, with a focus on those acquiring listening and spoken language in English when the first language (L1) is another spoken language. It should be noted that, although children and adolescents learning English whose L1 is American Sign Language can be considered ELs, that is not the way EL is used in this article. The term "EL" herein refers to those who are acquiring English when their L1 is another spoken language, for example, Spanish, Kreyòl, or Mandarin. The authors make the case for a collaborative approach in addressing the needs of these students and discuss

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the instructional issues related to supporting them across the grades.

EDUCATION IN AN ERA OF GLOBALIZATION

The purpose of schooling and the definition of success for those matriculating have changed markedly over the last century. When the United States achieved status as a world leader in the 19th and 20th centuries, the demands for formal education were different from what they are now in the 21st century. For example, a seventh- or eighth-grade reading level was all that was required of most citizens to prepare them for the world of work (Tucker, 1996). In that context, graduation from high school might not have been necessary to lead a productive life as an adult, to contribute to one's nation's way of life, and, ultimately, to maintain one's status in the world. Even for those completing high school, the inherent rigors cannot compare with graduation requirements today. For the United States to remain competitive in the worldwide marketplace (Partnership for 21st Century Skills, 2008, 2010), its educational system must become more robust to prepare a workforce that can meet the challenge. Therefore, it is important to view globalization as a significant force behind escalating education requirements (Casner-Lotto & Barrington, 2006) and to reflect on the demands it places on the workforce.

Workforce demands

By 2020, 65% of jobs in the United States will require postsecondary education (Carnevale, Hanson, & Gulish, 2013). Given that reality, K-12 education must prepare students for advanced education, not just for jobs after high school. Furthermore, many of the occupations will be in STEM (science, technology, engineering, and math) disciplines (Villorio, 2014), which the Bureau of Labor Statistics projects to grow to more than 9 million by 2022 (Richards & Terkanian, 2013).

What are these demands and which of them would appear to be particularly challenging for adults with HL whose first spoken language is not English? Identification of workforce demands has been on educators' radar for some time. In the latter part of the 20th century, efforts were directed toward identifying skills needed in the changing workplace. For example, the New Standards Project (National Center on Education and the Economy, 1998) identified nine areas of competence for the workplace: collecting, analyzing, and organizing information; communicating ideas and information; planning and organizing resources; working with others and in teams; using mathematical ideas and techniques; solving problems; using technology; understanding and designing systems; and learning and teaching on demand. Clearly, most of these areas involve spoken and written language competencies, which are bound to be a challenge for adults with HL who are learning English as another spoken language.

A focus on defining workplace demands continued into the 21st century. In 2003, the enGauge report (North Central Regional Educational Laboratory and the Metiri Group, 2003) identified critical skill clusters: digital-age literacy, inventive thinking, effective communication, and high productivity. In thinking about workers with HL learning English as another spoken language, the areas of digital-age literacy and effective communication appear most challenging. Under digital-age literacy, enGauge included basic literacy along with traditional and media-based prose, documents, and communication encountered in everyday living and across reading, writing, listening, and speaking. Also included was information and technological literacy, involving recognizing when information is needed, locating information, evaluating all forms of information, synthesizing, and using information effectively. In the area of effective communication, they identified the ability to communicate with individuals and groups in a positive manner, including teaming and collaboration, interpersonal skills, and interactive communication, all of which are related to one another.

Considering these identified skills, although communication is named as a specific set of competencies that involves language, clearly, most of the 21st century workforce competencies also involve language in some form or another. For example, inventive thinking requires knowledge obtained from listening and/or reading, accompanied by higher level language for problem solving and other cognitive processes.

Performance in the workplace

Knowledge of the demands of the workforce prompts inquiry into the success of the workforce as a basis for discussing education's response to workforce readiness. Unfortunately, widespread concern exists for performance of adults across the board, let alone for those with specific language challenges, such as those who have HL and are acquiring English. For example, it has been reported that greater than half of young adults in their mid-20s do not have the skills and credentials needed for success in today's demanding economy (Symonds, Schwartz, & Ferguson, 2011). Although specific statistics on adult ELs with HL are not available, a sense of the employment picture for this population can be gleaned from looking at separate data on adults who are deaf and adults who are ELs. It should be noted that the term "deaf" is used in employment statistics to include individuals identified as deaf, hard of hearing, hearing impaired, late deafened, or deaf-disabled (Garberoglio, Cawthon, & Bond, 2016).

Unemployment or underemployment of adults who are deaf

The employment gap for individuals who are deaf in the United States is a significant area of concern. In a report on employment trends for deaf individuals in the United States, several key findings emerged (Garberoglio et al., 2016). In 2014, only 48% of people identified as deaf were employed compared with 72% of hearing people, and Garbroglio et al. noted that the largest disparity between individuals who are hearing and people who are deaf was labor force involvement. Almost half of the individuals who are deaf (47%) were not in the labor force compared with less than a quarter (23%) of hearing people. A greater number of men who are deaf (56%) were found to be in the labor force than women (47.7%). By far the largest factor accounting for lack of labor force engagement is the presence of additional disabilities. In addition, employment experiences are not the same for all people who are deaf. Experiences by race, ethnicity, and gender for individuals who are deaf vary widely. For example, women who were Hispanic and deaf were found to have lower average annual income than those classified as White, and women who were Native American and deaf had the lowest employment rates.

Employment experiences are closely tied to individuals' educational attainment. Studies indicate that the employment gap between people who hear and those who are deaf narrows as levels of educational attainment increase (Garberoglio et al., 2016; Schley et al., 2011). As previously discussed, reading and writing abilities are often critical to workplace success (Foster & MacLeod, 2003). Workers who lack the ability to communicate effectively orally or demonstrate weak reading and writing skills are often relegated to lower wage jobs and underemployment, whereas adult workers with higher literacy skills earn higher wages (Appelman, Callahan, Mayer, Luetke, & Stryker, 2012; Garberoglio et al., 2016).

The largest employment gap between people who are deaf and those who are hearing was found in individuals who did not complete high school, and the smallest employment gap was found in individuals with a terminal degree. Not surprisingly, reasons cited in the literature for under- or unemployment difficulties of individuals who are deaf include communication difficulties (Haynes, 2014; Perkins-Dock, Battle, Edgerton, & McNeill, 2015), poor academic preparation (Luft, 2012; Walter & Dirmyer, 2013), and limited understanding of legal mandates and appropriate accommodations in the work setting (Bowe, McMahon, Chang, & Louvi,

2005; Houston & Caraway, 2010; McCrone, 2011).

Given the employment problems for adults who are deaf, how might the employment picture be viewed for these adults when their first spoken language is not English? Because employment statistics on adults with HL who are also ELs are not available, it is informative to understand the employment picture for adults who are ELs. This view may increase understanding of the monumental task faced by K-12 schools in preparing EL youth with HL to gain employment in the current workforce.

Unemployment or underemployment of adult ELs

A growing number of ELs are young adults who are unable to complete high school within the traditional time frame for a host of reasons; some are discharged or drop out before graduation (U.S. Department of Education [USDOE], 2016a). Dropping out of high school places these young adults at a high risk for experiencing negative socioeconomic outcomes as adults (Stark & Noel, 2015). As of 2015, 45% of all adult ELs, aged 25 years and older, lacked a high school diploma compared with 9% of their English-proficient counterparts. Approximately 15% of adult ELs had a bachelor's degree or higher, compared with 32% of English-proficient adults (USDOE, 2016a; U.S. Department of Labor, 2017).

Although adult learners may transition to postsecondary education, accessing postsecondary education is especially challenging for adult ELs. Given the pressures to find work and support a family, learners new to English may not have the time or resources to persist through a sequential program that moves them from the beginning to the advanced levels of English proficiency required for certificate training in high-demand jobs (McHugh, 2014; Wrigley, 2009). If adult learners do not have the opportunity to develop foundational language and literacy, they will be challenged to meet entry requirements for college or to be successful in postsecondary education or a workplace setting that requires proficiency in English (USDOE, 2016b; Wrigley, 2015).

In addition to communication challenges, adult ELs may experience stress as they struggle to manage conflicting work schedules, multiple jobs, and family responsibilities; inadequate transportation; limited access to affordable, high-quality child care; inadequate affordable housing; lack of adequate health care and medical insurance; and perhaps, even fear about their legal status in this country (National Center for Family Literacy and Center for Applied Linguistics, 2008). As of 2015, the overall EL population (immigrant and U.S. born) was less educated and more likely to live in poverty than peers in the English-proficient population. Employed EL men were much more likely to work in construction, natural resources, and maintenance occupations than English-proficient men, whereas EL women were more than twice as likely to be employed in service and personal care occupations than English-proficient women (U.S. Census Bureau, 2016; Zong & Batalova, 2016).

In general, factors that contribute to the under- or unemployment of adult ELs include the challenges they face acquiring English, while having to learn academic or career content and skills. For example, Parrish and Johnson (2010) suggested that there is often a gap between what adult ELs are taught in adult language acquisition programs and the demands of advanced education and employment. Another factor is that adult ELs may not have the oral and written communication skills, work readiness skills, or credentials valued by employers to obtain and retain employment and advance to positions beyond the entry level (Parrish & Johnson, 2010; Wrigley, 2015; Wrigley, Richter, Martinson, Kubo, & Strawn, 2003).

Response to workforce readiness

So far in this discussion, workforce demands in the current era of globalization have been addressed and the case has been made that oral and written communication skills are paramount to the success of adults seeking

employment. For two populations of adults, those with HL and those who are EL who may be underperforming in these areas, deficits in communication are likely to make gainful employment a significant challenge. Employment statistics for these populations provide evidence of this dilemma. And although there are no data specific to adult ELs with HL, it is reasonable to express even greater concern for these individuals. How can our nation respond to the challenges of workforce readiness for this subset of our citizenry?

K-12 LITERACY AND LANGUAGE DEMANDS

Concern for preparing a workforce to meet globalization challenges has led to the development of more rigorous standards in K-12 education over the past 10 years. Given the additional employment challenges of adult ELs with HL, higher K-12 standards are especially important to consider. The term that has been used to describe the projected K-12 outcome in this regard is "college and career readiness" (CCR; Common Core State Standards Initiative [CCSSI], 2010a, 2010b). When the National Governors Association Center for Best Practices and the Council of Chief State School Officers led the effort to produce a set of K-12 standards in English/Language Arts and Mathematics, which they called the Common Core State Standards (CCSS), they rooted them in CCR anchor standards (CCSSI, 2010a, 2010b). Controversy has surrounded state adoption of these standards, largely related to the perception that they are tantamount to national standards and federal intrusion into education, whereas education is a state's right to manage. However, the reality is that even for states that never adopted the CCSS or states that have since abandoned them, rigorous standards geared to CCR have been implemented across the states. In fact, in comparing the CCSS with non-CCSS state standards, one often finds identical verbiage. Therefore, it is reasonable to look at the CCSS for clues of language/literacy requirements in K-12 that provide challenges to EL students with HL.

Rigorous literacy standards

What follows are examples of CCSS—English/Language Arts and Literacy in History/Social Studies, Science, and Technical Subjects (CCSSI, 2010b), with a discussion of inherent language demands. It should be noted, however, that language demands cannot be completely understood outside of the curriculum used by teachers to meet the standard, as well as the instructional techniques to implement the curriculum. In addition, how the standards are assessed may affect language requirements; that is, although it may be clear that a standard requires language processing and/or production, the curriculum adopted and the teaching approach constitute other layers of language demands, as does the assessment of the standard on high-stakes tests and classroom measures. Therefore, the language load, that is, how much language is required, cannot be judged solely on the standard.

In addition to analyzing the standards themselves, to troubleshoot difficulties likely to be encountered by students with HL who are learning English as another spoken language, educators would have to also examine the curriculum used to teach the standard, the teacher's instructional practices, and the nature of assessments. Furthermore, they would have to consider auditory access and the student's evolving language proficiency (Bailey & Huang, 2011; Cole & Flexer, 2016; Ehren, 2014).

Example 1.

Kindergarten Reading—Informational Text

Key Ideas and Details

1. With prompting and support, ask and answer questions about key details in a text.

For kindergarten students to *ask* questions about an informational text, they have to have words in their lexicon that relate to the topic of the text and also have interrogatory structures in syntax. The same knowledge and skills would be required for them to *answer* questions; that is, students would have to

understand the vocabulary and syntax of the questions. However, before they ask or answer relevant questions about the text, students have to understand the text in the first place, involving vocabulary and syntax knowledge. Moreover, to deal with informational text, schemata for various kinds of expository text would frame any tasks dealing with the kinds of details found in that kind of text. Familiarity with a variety of expository structures versus narrative structure would be involved.

Example 2.

Second-Grade Reading—Literature

Integration of Knowledge and Ideas

9. Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures.

This second-grade literature reading standard requires much more than processing the ideas in a story. As the standard indicates in its name, it involves integrating ideas; in this case, two different versions of the same story. However, students would have to understand each version of the story, which is facilitated by knowledge of story grammar. As with any comparison/contrast process, students must understand the meaning of compare and contrast; that is, what is alike between the stories and what is different. Depending on the nature of the stories, the standard also may require attention to detail regarding features that make the stories similar or different.

Example 3.

Sixth-Grade Writing

Text Types and Purposes

4. Write arguments to support claims with clear reasons and relevant evidence.
   a. Introduce claim(s) and organize the reasons and evidence clearly.
   b. Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.
   c. Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.
   d. Establish and maintain a formal style.
   e. Provide a concluding statement or section that follows from the argument presented.

Sixth graders are asked to engage in argumentation in this standard, which requires higher level thinking processes manipulated with complex language. The listed items explicate the components. To produce this kind of writing, students must first identify claims and decide what constitutes reasons and evidence for the argument. In all likelihood, such a task would involve research on a topic using print and/or digital sources with the attending listening/viewing and/or reading skills. Selecting relevant information from what is heard, viewed, or read is another skill required. All this information must then be organized in a cogent way when writing. The requirement in the standard for the students to use credible sources means they must identify various features of the sources and judge whether they are sound. One could argue that this involves both metacognitive processing and metalinguistic processing.

Item "c" in the list explicitly captures some of the basic language requirements involved in this standard: using words, phrases, and clauses. At this grade level and with this kind of writing, students have to have command of various clause structures that facilitate expression of relationships between and among ideas. The item involving establishing and maintaining a formal style is metalinguistic in that students must be able to identify the kind of expression that falls into the category of "formal"; thus, they have to know and recognize different language registers. The last item requires that students structure a conclusion that follows from the argument presented, with another element requiring higher level thinking and language use.

Example 4.

Eighth-Grade Listening and Speaking

Comprehension and Collaboration

1. Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *Grade 8 topics, texts, and issues,* building on others' ideas and expressing their own clearly.
   a. Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.
   b. Follow rules for collegial discussions and decision making, track progress toward specific goals and deadlines, and define individual roles as needed.
   c. Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.
   d. Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.

According to this standard, eighth graders are expected to engage in discussions with a variety of partners around issues and texts. There are obvious pragmatic language components related to the give and take of engaging in discussion with others, especially because the engagement rules may change depending on the partners. For example, the way adolescents discuss topics with peers is different from discussions with a teacher. They are also expected to build on the ideas of others, requiring high-level cognitive and metacognitive skills. Expressing one's own ideas clearly requires an adequate lexicon about the topic at hand and facility with the clause structures to express relationships (e.g., "I think X because Y."). The second listed item makes clear that the expectation is for "collegial discussions and decision making," which poses a bit of a challenge for most eighth graders, who are not likely to know these rules. The skills required in the second bullet involve not just the formulation of questions, semantically and syntactically, but higher level metacognitive and metalinguistic activity to be able to connect those questions to the ideas of others and respond appropriately.

Example 5.

CCSS—9th- to 10th-Grade Reading—Literacy in Science and Technical Subjects

Key Ideas and Details

2. Determine the central ideas or conclusions of a text; trace the text's explanation or depiction of a complex process, phenomenon, or concept; provide an accurate summary of the text.

This is one of the disciplinary literacy standards that is articulated in a separate group of CCSS standards at the secondary level. Disciplinary literacy standards are consistent with current understanding of adolescent literacy, which acknowledges different language requirements in specific subject areas (e.g., Heller & Greenleaf, 2007; Shanahan & Shanahan, 2008). In other words, identifying key ideas and details is not the same in science as it is in history; this standard relates specifically to this language process in science. In science, a central idea is likely to be a scientific construct, with details explaining a complex process, phenomenon, or concept. The nature of the details on which a student should focus in science differs from those important in history. For example, key details in science are not likely to include dates of occurrence, whereas that information is critical in history.

Although this is a reading standard, it is accompanied by the requirement to produce a summary that may be spoken or written, requiring a selection of the most important information and expression in a cohesive way. The integration of an expressive

component in a reading standard reinforces the notion of reciprocity across the language processes; that is, the processes of listening, speaking, reading, and writing are interrelated (Anderson & Briggs, 2011; Catts, Fey, Zhang, & Tomblin, 1999; Kang, McKenna, Arden, & Ciullo, 2016). Lexicon and syntax are key underpinnings in the summarization process. It should be noted that there is a companion standard in history/social studies.

Example 6.

CCSS—11th- to 12th-Grade Language

Vocabulary Acquisition

6. Acquire and use accurately general academic and domain-specific words and phrases, sufficient for reading, writing, speaking, and listening at the CCR level; demonstrate independence in gathering vocabulary knowledge when considering a word or phrase important to comprehension or expression

Vocabulary acquisition standards are part of every grade level. In this upper high school example, the standard calls for understanding and using both general academic and domain-specific words and phrases. In the Beck, McKeown, and Kucan (2002) word knowledge schema, this would be a requirement for Tier 2 (high-frequency words that occur across a variety of domains) and Tier 3 words (low-frequency words that occur in specific domains). Implicit in the use of the word "phrases" in this standard is the notion that knowledge of single words is insufficient. High school students must be able to combine words, and they must be able to do so across the language processes of listening, speaking, reading, and writing; that is, when using all language/literacy processes. In addition to knowledge of a corpus of words, students must know how to figure out unknown words. In other words, they need vocabulary acquisition strategies.

LITERACY CHALLENGES OF EL STUDENTS WITH HL

The standards discussed earlier provide a glimpse of the complex language requirements K-12 students must master en route to CCR. What problems should educators anticipate and then address to facilitate the success of EL students with HL across the grades? This discussion begins with an historical look at literacy proficiency of students who have an HL, then those who are EL, followed by a critical analysis of the diversity in both populations. Then, discussion of anticipated literacy challenges focuses on EL students with HL who are learning English as another spoken language.

Historical look at literacy proficiency

An overall picture of literacy proficiency in EL students with HL is not currently available in the research. To shed light on the status of literacy acquisition in this population, it makes sense to ground the conversation, at least for the time being, with what is known about the proficiency of students who have HL and those who are EL, although it is reasonable to assume that the literacy problems of EL students with HL will be compounded.

Students with HL

It is well documented that children with HL are at risk for literacy delays compared with their peers without HL (Lederberg, Schick, & Spencer, 2013; Paul, 1998; Schirmer & McGough, 2005; Werfel, 2017). Since the 20th century, scholars have attempted to determine the academic and literacy levels of these children and adolescents (Allen, 1986; Kuntz, 1998; Luckner, Sebald, Cooney, Young, & Muir, 2005/2006; McAnally, Rose, & Quigley, 1994). Research has focused primarily on the importance of having strong language skills for literacy development (Lane & Baker, 1974; Lewis, 1996; Marschark & Harris, 1996; Moeller, Tomblin, Yoshinaga-Itano, Connor, & Jerger, 2007; Wray, 2007). Although there is wide variability in reading and writing outcomes in students with HL, the average

reading level for 18-year-olds with HL has been consistently reported as approximately third grade (Qi & Mitchell, 2012). Interestingly, some researchers (Estabrooks & Beal-Alvarez, 2013; Kelly & Gaustad, 2007) note that many children with HL read at much higher levels, with some children having literacy skills high enough to pass college entrance examinations; however, in general, the consensus in the literature is that HL puts children at high risk for poor literacy achievement due to a myriad of factors (e.g., late-identified; L1 is not English) (Foorman, Goldenberg, Carlson, Saunders, & Pollard-Durodola, 2004; Lederberg et al., 2013; Mayer, 2007; Nittrouer, Caldwell, Lowenstein, Tarr, & Holloman, 2012). Importantly, researchers point out that individuals who have early listening and spoken language exposure (e.g., due to early identification, amplification/cochlear implants, and/or intervention) were more likely to achieve proficiency in literacy skills (Calderon & Naidu, 2000; Madell & Flexer, 2014; Yoshinaga-Itano, 2003).

EL Students

National data confirm large and persistent gaps between the reading performance of EL students and their English-speaking peers (McFarland et al., 2017). For example, Hemphill and Vanneman (2011) reported that nearly 50% of Latino children read below a basic level at fourth grade and 81% cannot read proficiently. Research has indicated that children who are at risk for reading problems in their early elementary school years continue to have difficulty reading into adulthood, entailing adverse academic and vocational consequences (Bishop & Snowling, 2004; Catts & Hogan, 2003; Lyon, 2004; Scarborough, 1998; Snowling, Bishop, & Stothard, 2003).

The National Literacy Panel on Language-Minority Children and Youth (August & Shanahan, 2006) synthesized approximately 300 studies and compiled important findings on the development of literacy in EL students. Briefly, they noted the similarities and variations across five key components of reading (e.g., phonological awareness, decoding, fluency, vocabulary, and comprehension) and offered several ways that instruction could be adjusted for EL students (Solter-Gonzalez, Klingner, & Cano-Rodriguez, 2014). Several factors that influence literacy in ELs have been identified, such as literacy in L1, proficiency in English listening and speaking in the second language (L2), age of arrival to the United States, expectations of the school experience, types of L2 readers, and similarities between the student's L1 and English (L2).

English learner students usually develop oral language and literacy skills in L2 while developing their L1 (Bialystok, 2002; Cummins, 1981; Hwang, Lawrence, Mo, & Snow, 2015; Lawrence, 2012). In addition, they are expected to learn academic content and access the curriculum in the different subject areas (Nagy & Townsend, 2012; Snow, 2010). This requires that students understand the language that appears in academic texts because it differs from conversational language (Collier & Thomas, 1989; Cummins, 1981; Scarcella, 2003; Schleppegrell, 2004). Even when ELs have learned to communicate sufficiently in English for conversational purposes, they often continue to struggle with the academic language and domain-specific vocabulary knowledge required to comprehend content area and literary texts (August & Shanahan 2006; Rivera, Moughamian, Lesaux, & Francis, 2008).

Too often, for EL students, these experiences with reading can be the beginning of school failure. The late elementary grades are especially critical because the knowledge and use of language skills increase as the focus shifts from learning fundamental reading skills in elementary school to utilizing reading to learn about content in mathematics, science, social studies, and English classes (Chall & Jacobs, 2003). At this point, children must learn to read in units larger than individual words and more cognitive elaboration is required as the text is less contextualized than in earlier grades (Gibson & Levin, 1975). Often this happens at the same time that many EL students who have received some language support (e.g., English for Speakers of Other

Languages [ESOL] program; or other bilingual program) are exited from supportive programs into all-English classrooms.

In viewing the literacy challenges experienced by this population, it is essential to acknowledge that ELs represent a diverse population of students. They demonstrate varying degrees of proficiency in their native language and English and varying degrees of subject matter knowledge.

Diversity within groups as an additional factor in viewing literacy challenges

To ascertain the language/literacy challenges of EL students with HL, it is necessary to consider the diversity included in each of these categories. To neglect to do so is to imply that all ELs with HL are likely to confront the same challenges with K-12 curriculum, instruction, and assessment. That would be inaccurate.

Diversity among students with HL

Historically, discussions about children with HL have centered on the "ear" (Estabrooks, MacIver-Lux, & Rhoades, 2016) and the audiological dimensions of HL (Paul & Whitelaw, 2011; Schow & Nerbonne, 2018). Students with HL often are described by variables, such as the degree of HL (severity), age at onset (congenital vs. acquired), age at identification (early identified vs. late identified), etiology/cause (cytomegalovirus, ototoxicity, auditory neuropathy), presence of additional disabilities (e.g., child with autism), and the hearing status of parents or caregivers. These variables are used, in part, to determine the effects of HL on speech–language and literacy development. They also provide information that parents and professionals can use to guide their discussions and decisions about options that will optimize language and literacy outcomes for their children.

Neurobiological research and advances in hearing technology have shifted current conversations about HL from the ear to the brain (Cardon, Campbell, & Sharma, 2012; Kral, 2013; Kral & Lenarz, 2015; Kral & Sharma, 2012). The ears, often just described as the organ of hearing, increasingly are described as the "doorway to the brain." In other words, we hear with the brain and the ears are the entrance to the brain for auditory information. Following this premise, the single most important purpose of any hearing technology is to provide access for auditory information to reach the brain (Flexer, 2018). Thus, children who are early identified, amplified, and provided with support and early intervention can be taught to attend to acoustic events with intentionality, resulting in making primary use of listening (Cole & Flexer, 2016; Madell & Flexer, 2014). In general, however, the degree of HL is no longer seen as limiting the brain's access to auditory information. Today's children with HL of any degree can achieve increased levels of oral language, literacy skills, and academic competencies compared with previous generations of children with HL (Yoshinaga-Itano, 2003) with appropriate support and intervention. For these children, the ear is the doorway to the brain for sound/auditory information (Cole & Flexer, 2016; Estabrooks et al., 2016; Flexer, 2018).

In general, these descriptors remain critical to the understanding of the impact of an HL and the work that needs to be done to promote full acoustic access of auditory information. However, today's clinicians and researchers are faced with a new generation of children with HL. These are children with cochlear implants.

Earlier identification, as well as a decrease in the minimum age of cochlear implantation to 12 months, has resulted in greater numbers of children receiving cochlear implants at younger ages (American Speech-Language-Hearing Association, 2004). Earlier implantation and clinical advancements in cochlear implant habilitation have enabled children with HL to receive auditory stimulation during the sensitive period for the development of speech and language skills (Tomblin, Barker, & Hubbs, 2007). Many of these children are capable of developing age-appropriate listening and spoken language, reading, and academic skills (Kirk, Miyamoto, Ying, Perdew, & Zuganelis, 2000; Pickett & Stark,

1987; Yoshinaga-Itano, 2003). Today's child who is deaf and has a cochlear implant can hear well enough to perceive and understand spoken language.

Students with HL who come from homes where the primary spoken language is not English might differ by the age and sequence of language acquisition, the linguistic proficiency attained, and the purposes for which the languages are used (Crowe, McLeod, & Ching, 2012). The heterogeneity of this diverse group of students with HL adds a further layer of complexity in the language needs of the population. For this group of students, the impact of HL warrants working closely with parents to support them as they make well-informed choices regarding language and communication options, technology use, and the language and literacy support they will need as the child advances through school (DesGeorges, 2016; Steinberg, Bain, Li, Delgado, & Ruperto, 2003). Given the diversity of children with HL, it is equally as important to discuss the diversity among various EL subgroups. It is critical to do so because the language and literacy challenges may parallel, as well as differ, for EL students with HL and ELs without HL.

Diversity among EL students

According to researchers and experts in language acquisition (Artiles & Ortiz, 2002; Garcia, 2005; Goldberg, 2008; Nutta, Strebel, Mokhtari, Mihai, & Crevecoeur-Bryant, 2014), there is no one profile for EL students, nor is there one adequate single response to meet their educational goals and needs. Diversity among EL students refers not only to their linguistic and/or cultural backgrounds but also to the types of learners who make up the EL population, such as some identified as *students with interrupted formal education* (SIFE) or *long-term ELs*. By understanding the performance of the diverse learners who make up the EL population, professionals may gain a better understanding of their needs so that they can provide support, promote rigorous core academics, and focus on academic language development and literacy in the native language and English, as appropriate (Cloud, Lakin, Leininger, & Maxwell, 2010; Linquanti & Cook, 2013; New York City Office of English Language Learners, 2009).

What distinguishes one group of ELs from another and how does this help us better understand their literacy challenges? One way the literature categorizes ELs is by the needs of different categories of ELs (U.S. Department of Education, Office of English Language Acquisition [USDOE OELA], 2017). Although each of these groups brings challenges that might be shared by all students who are ELs, they also have unique needs. A brief description of each group is provided as follows:

- *Newcomer students* to the United States are a highly heterogeneous group. This term is an umbrella term that includes various categories of immigrants who are born outside of the United States (USDOE OELA, 2016).
- *Former students* are ELs who have reached proficiency on a test of English language skills and no longer require EL services. Students exiting from EL status must be monitored for at least 2 years to ensure that (1) they have not been prematurely exited, (2) any academic deficits incurred as a result of participating in the EL program have been remedied, and (3) they are meaningfully participating in the standard program of instruction comparable with their never-EL peers (USDOE OELA, 2017).
- *Long-term ELs* are students who meet the formal education classification criteria as students who have been enrolled in American schools for more than 6 years, who are not progressing toward English proficiency, and who are struggling academically due to their limited English skills.
- *Special education ELs* are students who are served by an Individualized Education Program (IEP). When an EL student is determined to be a child with a disability—as defined in IDEA, or an individual with a disability under the broader definition of disability in Section 504—the student's

English-learning- and disability-related educational needs must be met.

- *Students with interrupted formal education* are students described with an umbrella term for ELs who are new to the U.S. school system and have had interrupted or limited schooling opportunities in their native country. They have limited backgrounds in reading and writing in their native language(s) and are below grade level in most academic skills. They may also be preliterate in their first language (Custodio & O'Loughlin, 2017).

Another way that ELs are defined is by their English language proficiency in listening, speaking, reading, and writing. School districts have the responsibility for identifying the student's English language proficiency levels across literacy domains within the descriptors used by their specific states to describe English language proficiency (Power-deFur, 2016). For example, given the national effort for states to collaborate and use consistent English language proficiency development standards, the WIDA organization, a consortium of 39 states (see https://www.wida.us/aboutus/mission.aspx), developed the WIDA Levels of Language Proficiency. These proficiency levels divide the progression from beginning to exited EL into six levels: 1—Entering; 2—Emerging; 3—Developing; 4—Expanding; 5—Bridging; and 6—Reaching (WIDA, n.d.). Other language proficiency frameworks are used to situate EL students (Krashen & Terrell, 1983; Taylor, Watson, & Nutta, 2014) into basic levels or stages and detail student and teacher behaviors at each one. Regardless of the schema used, the key point in working with EL students is that knowing the characteristics of each level equips professionals to communicate effectively with ELs and to select appropriate teaching approaches.

Anticipated challenges of children and adolescents with HL accessing English as another spoken language

Of concern in this article are children and adolescents with HL who access listening and spoken language in English as one of two or more languages. Therefore, a more in-depth discussion of literacy in that population follows.

Since 2000, major advances in universal newborn hearing screening programs and technological advancements in sensory devices have had a major impact on the language and literacy outcomes for children with HL. Changes in available audiological technology has improved speech perception and auditory access to spoken language (Fitzpatrick, Crawford, Ni, & Durieux-Smith, 2011; Nittrouer, Kuess, & Lowenstein, 2015). In addition, early intervention has improved the prospects for children with HL to develop listening and spoken language (Spencer & Oleson, 2008). This improvement and access have resulted in the inclusion of many children with HL in their community school classrooms with their hearing peers due to their age-appropriate listening and spoken language proficiency. Given today's technological advances and early auditory-based intervention, children with HL can develop language and literacy skills and succeed in academic skills even with compromised hearing; however, they will continue to require support from highly qualified professionals (Rosa-Lugo & Allen, 2011).

Children who are "early identified" now have the possibility of developing audition, speech, and language along a typical developmental pattern with early amplification, parent support, and appropriate early intervention. In contrast, children who are identified later than 6 months and receive inadequate amplification and/or early intervention are characterized as "late identified" (Robbins et al., 2004; Yoshinaga-Itano, 2003; Yoshinaga-Itano & Apuzzo, 1998; Yoshinaga-Itano, Sedey, Coulter, & Mehl, 1998). This subgroup of children with HL usually demonstrates delayed acquisition of listening and spoken language due to limited and/or inconsistent access to the auditory and linguistic input necessary for language development (Ambrose, Van Dam, & Moeller, 2014; Moeller & Tomblin, 2015). These children require a remedial

approach to intervention, with instructional intensity and support, in order to meet grade-level expectations (Estabrooks & Estes, 2007; Rosa-Lugo, Horvath, Pyzik, & Teegardin, 2016).

Although many children and adolescents with cochlear implants are successfully graduating from high schools with their hearing peers (Archbold, Sach, O'Neill, Lutman, & Gregory, 2008; Briscoe, Bishop, & Norbury, 2001; Estabrooks, Lederberg, Miller, Bergeron, & Conner, 2008; Geers & Hayes, 2011; Gibbs, 2004), several educational challenges persist for children with cochlear implants (Geers, Tobey, Moog, & Brenner, 2008; Harris & Terlektsi, 2011). Chute and Nevins (2003) identified the following five challenges that children with cochlear implants must manage in educational settings: (1) acoustic; (2) academic; (3) attention; (4) associative; and (5) adjustment challenges. These challenges are often exacerbated by placement of children with HL in general education classrooms but without sufficient language and literacy skills to meet the academic demands of the curriculum, without monitoring of technologies that allow access to auditory information, and without professionals or support personnel who have the preparation to work with children with HL and their families (Cole & Flexer, 2016; Estabrooks et al., 2016; Perigoe & Paterson, 2017; Rosa-Lugo & Allen, 2011).

Chute and Nevins (2003) noted that, although current cochlear implant technology is capable of providing access to speech at normal conversational levels, children still need support to manage listening challenges in the classroom and to support English language development and literacy development. Other challenges beyond those associated with HL may include the presence of a home language other than English and the presence of additional disabilities (Bunta et al., 2016; Guiberson, 2005, 2014; Marchman, Martínez, Hurtado, Grüter, & Fernald, 2017; Thibodeau & Johnson, 2005). It is the former confounding variable that is of concern in this article.

EL as a confounding variable

English learners arrive at school with a range of oral, reading, and/ or written language proficiency, as well as a diverse experience they are required to use to access content area curricula. They generally lag behind their English-speaking peers in communicating in English as they are required to learn how to speak L2 and use the language to achieve academically. This significant lag puts them at risk for underachievement and for leaving school without graduating (Cloud et al., 2010; Garcia, Jensen, & Scribner, 2009). As ELs progress through the curriculum, the task of reading and writing becomes more demanding due to the level of required English proficiency (Almanza de Schonewise & Klingner, 2012).

To achieve academic and personal success, students must learn to read with understanding from an early age, as well as refine and strengthen these skills over time. For EL students, learning to read is complicated by the relationship between reading and speaking skills. Lack of familiarity with the sounds in English words may hinder an EL's understanding of the relationship between sounds and letters in print and reading comprehension because they characteristically have less English vocabulary knowledge than their English-speaking peers (Geva, Yaghoub-Zadeh, & Schuster, 2000). Limited English vocabulary in kindergarten is a clear predictor of reading comprehension deficits in later grades (Kieffer, 2008). Because EL students face the dual task of developing proficiency in English while they are developing critical literacy skills, it can lead to difficulty learning, diminished literacy, and reduced academic achievement (August & Shanahan, 2006).

Academic vocabulary and academic English

Academic vocabulary is one class of vocabulary that poses challenges due to its complex and often abstract nature (Bailey, Butler, Stevens, & Lord, 2007). Academic vocabulary is a component of academic English, a

register of English used in academic settings and texts, which is critical for academic success (Corson, 1997; Cunningham & Moore, 1993; Nation & Kyongho, 1995; Scarcella, 2003). English learners are at a heightened risk for struggling with academic vocabulary. They often require several years to master academic English (Cummins, 1981; Hakuta, Butler, & Witt, 2000). Because of less experience with English and lack of exposure to academic English before entering general education classrooms, they often face challenges upon encountering academic tasks primarily in English. Unlike EL students' phonological and orthographic processing skills, which develop similarly to those of English-speaking students (Chiappe, Siegel, & Wade-Woolley, 2002; Geva et al., 2000), EL students' semantic knowledge of English is often less developed (Bialystok, Luk, & Kwan, 2005; Biemiller, 1999; Droop & Verhoeven, 2003; Geva et al., 2000).

Integrating HL and EL factors

So how do language and literacy challenges faced by ELs relate specifically to EL students with HL learning English as another spoken language? First, the sparse research data on the language and literacy challenges of EL students with HL has provided inconsistent data on how best to support language and literacy skills development in this population. Although there is consensus in the literature on the importance of supporting spoken language development in monolingual children with HL, this is not the case for EL students with HL. Several researchers have examined children's competencies in their home language (L1) and English (L2) and provided evidence for supporting both spoken languages (L1 and L2) in bilingual children with HL (Bunta & Douglas, 2013; Guiberson, 2014; Waltzman, McConkey Robbins, Green, & Cohen, 2003).

However, other researchers have been more cautious in supporting the home language (L1) for this population. They acknowledge that although learning a second spoken language is possible for children with cochlear implants, this may be the exception rather than the rule (Deriaz, Pelizzone, Pérez, & Fornos, 2014; Forli et al., 2018; Nassif, Predolini, Barezzani, & Zanetti, 2012; Teschendorf, Janeschik, Bagus, Lang, & Arweiler-Harbeck, 2011). Some authors have observed that it may be preferable for parents of ELs with HL to speak only English with their children in order to increase optimal spoken language development and minimize language confusion (Guiberson, 2014; McConkey Robbins, Green, & Waltzman, 2004). This is a scenario often echoed with parents of hearing EL children and adolescents. The lack of agreement regarding use of the home language is a problem (Crowe, McKinnon, McLeod, & Ching, 2013). Simply put, in the absence of evidenced-based best practice, recommendations to avoid use of the home language have the potential to limit linguistic experiences for EL children with HL, which, in turn, could result in diminished speech, language, literacy, and academic success.

A COLLABORATIVE APPROACH IN ADDRESSING LANGUAGE AND LITERACY

To address the language and literacy needs of children and adolescents who have HL and who are accessing English as another spoken language, collaboration among a wide range of stakeholders is critical. Collaboration among professionals certainly does not come easily; however, professionals with expertise in working with EL students and students with HL must work together with families to facilitate acquisition of literacy skills and strategies needed for CCR. In fact, the needs of students with language problems are so complex that these students will not be successful unless educators share the responsibility for academic achievement (Ehren, 2000, 2006; Wallach & Ehren, 2004). Such complex problems call for the merging of the expertise of a speech–language pathologist (SLP) and a professional specializing in ESOL in promoting language and literacy in ELs. This may be referred to as the "Power of

Two" (Rosa-Lugo, Mihai, & Nutta, 2012). For EL students with HL, collaboration of more than just these two professionals would be required.

That being said, it is important to note that the word "collaboration," although used widely in education, means different things to different educators and therefore may involve disparate educational practices on behalf of students. One of the most robust definitions of collaboration comes from Schrage (1995):

> Collaboration is the process of shared creation: two or more individuals with complementary skills interacting to create a shared understanding that none had previously possessed or could have come to on their own. Collaboration creates a shared meaning about a process, a product, or an event. (p. 29)

What Schrage described as collaboration is the antithesis of what is often described as "teamwork." With teamwork, contributors may offer a separate piece of the puzzle; thus, an interpretation or plan of action is cobbled together with each individual piece remaining unchanged. Schrage suggested that teamwork is not the approach needed to solve complex problems in education or business (hence the name of his book, *No More Teams*). On the contrary, with a shared creation, such as Schrage described, although individuals each bring their perspectives and suggestions to the table, the final outcome is a new creation, far different from what it would be with teamwork and without game-changing interaction. For example, colleagues might want to draft goals to discuss at an upcoming IEP review on a student. In a teamwork approach, professionals might each draft goals in a specific area to bring to the meeting; for example, the SLP might draft the speech–language goals and the special education teacher the reading and writing goals. Each is doing a job connected to the task at hand; that is, they are employing teamwork. The question is whether such a division of labor is in the best interest of the student who is struggling with language across spoken and written processes. In a true collaboration, however, the SLP and the special education teacher would discuss possible targets and work together to draft goals across intersecting areas of listening, speaking, reading, and writing, not just in preparation for an IEP meeting but also to monitor the progress of the student over time.

This is the kind of collaboration needed to address the needs of the EL children and adolescents with HL. Many individuals must work together to create and implement an educational plan that will facilitate acquisition of spoken and written language. These include SLPs, audiologists, bilingual teachers, ESOL teachers, teachers of the deaf and hard of hearing (D/HH), general education classroom teachers, families, and for older students, the students themselves. This kind of collaboration goes beyond superficial participation in meetings required by law and necessitates a real partnership in decision making. Educators may not be used to this kind of robust collaboration. They must also accept that shared decision-making requires each participant's willingness to give up personal ownership of a particular view and engage in the kind of active listening that acknowledges multiple perspectives.

A critical factor in shared creation around EL students, when thinking about family members as collaborators, is approaching the process with intercultural competence. The diagnosis of HL in a young child can have a profound impact on any family. One factor influencing the response by a family to a child's disability is the family's cultural background. Although the extent to which culture influences decision making has not been adequately studied, findings from several studies note that cultural elements such as language, family structure, gender roles, and beliefs about health and healing play significant roles in the family's decisions about rehabilitation and treatment of disabilities (Charles, Gafni, & Whelan, 1997; Eleweke & Rodda, 2000; Steinberg & Bain, 2001).

Parents whose primary language is not English may have additional difficulty with successfully navigating the decision-making process for their child. Professionals must recognize and respect the student's family structure and cultural dynamics. The professional must acknowledge the recognized head of household, who may be the primary decision maker, and understand the various roles of siblings and/or extended family members. For some families, the choice of communication mode may be complicated by the spoken language used in the home being different from the spoken language used in school (Steinberg et al., 2003). A shared language between parents and professionals, with interpretation as necessary, is critical to optimize the discussion and exploration of treatment options.

An important focus of collaboration must be on individual students. A requirement of IDEA 2004 [300.324(a)(2)(iv)] is for a communication plan (CP) to be in place for students who are D/HH during the development of an IEP. This CP serves as a tool to obtain data and guide professionals in discussing and documenting the considerations and/or actions identified by all the professionals involved in creating the CP.

As an example of a robust approach to collaboration, one school district established a biweekly case study structure to explore the needs of its students with HL, which goes beyond the requirement of just "filling out" a CP. All the professionals responsible for working with children and adolescents with HL across the district meet to obtain the perspective of all professionals; these individuals include the D/HH program specialist, educational audiologist, Listening and Spoken Language Specialist (LSLS) (SLP or D/HH teacher with added certification), itinerant D/HH teacher, reading coach, general education teacher, ESOL program specialist, and educational interpreters (as appropriate). One student from the early intervention, elementary, middle, and high schools is chosen each week for discussion by the primary D/HH teacher who is given 20 min to present the "case study" and pose three key questions to guide the discussion, usually about areas of concern or interest expressed by multiple professionals. Participating professionals engage in dialogue about children with HL from Pre-k through grade 12, use various types of amplification, vary in communication systems and languages, and may be diagnosed with additional disabilities. This "case study" approach allows stakeholders to collaborate in meeting children's needs as they progress from grade to grade.

This collaborative effort involves framing and reframing plans for instruction and intervention based on multiple perspectives. For example, for a student newly implanted with a cochlear implant receiving an auditory-based intervention, all professionals discussed the selected Speaking and Listening Standards from the CCSS to determine the additional supports from a variety of professionals needed to help the student successfully meet the standards. The process resulted in CPs that were realistic and reflective of the supports and resources that are necessary to meet the CCSS.

CONCLUSION

The intense literacy demands inherent in rigorous standards, curriculum, instruction, and assessment, which stem from workforce literacy demands, have major ramifications for children and adolescents with HL acquiring English as a second spoken language. Therefore, it behooves all educators in K-12 education working with these students to be aware of the demands and their likely impact. Most importantly, because of the diversity of the population and the myriad factors involved in language acquisition, it is necessary for professionals to engage in robust collaboration with each other and with families to create shared decisions about appropriate educational approaches.

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