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Access to and Accessibility of Language: Implications on Literacy

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Often, the word *struggle* shows up when discussing reading and deaf children. The circumstances that create the situation are unfortunate but avoidable. Reading development should take place without undue struggle, and this can happen with a strong foundation in language. We believe we do not look enough at reading development that happens naturally. If children have meaningful and enjoyable experiences with reading, they will be more likely to pick up reading skills naturally. We need to understand more the factors that underlie the variance in deaf children's reading skills.

Many deaf children fail to develop reading and writing skills (e.g., Traxler, 2000) simply because they do not have access to a community with a language that is accessible in other words, rich and easy for them to learn, use, and master (Meadow, 1967, 2005). In this chapter, we attempt to weave our observations that span our professional and scholarly work in the areas of literacy and language development and our personal experiences with Deaf people. One of us is a third-generation Deaf person; the other is a hearing person who has been in Deaf education for 25-plus years. We started our professional lives as classroom teachers and have worked our respective ways to our present profession as college educators and researchers on language and emergent literacy development in the United States. In this chapter, we bring our shared and unique perspectives about how deaf children's literacy development is impacted by limited access to language and discuss the importance of making change on a global level. We have inserted our respective observations in the first voice (with our names written in *italic*) through the chapter.

FACTORS CONTRIBUTING TO LITERACY SUCCESS

Debbie: As I worked with students each year at a residential school for the deaf, I often reflected upon what I had learned in graduate school, that Deaf children with Deaf parents typically would read on or above grade level while those with hearing parents were typically delayed (e.g., Lane, Hoffmeister, & Bahan, 1996). It is one thing to read about it and another to see it firsthand. Yet sure enough, over my five years teaching, the Deaf students with Deaf parents typically did read on or above grade level. They were the students who were the class leaders, who others looked up to. They also typically had a strong sense of who they were and proud to be Deaf.

Marlon: Yes that is true, but I have also seen that students with hearing parents also excelled. Those students have high-quality communication at home. I remember doing an interview with a hearing mother because I was curious about the circumstances that led her to embrace American Sign Language (ASL) shortly after discovering her daughter was deaf. She matter-of-factly explained that one of the first things she did was to visit a preschool class in a school for the deaf. Many of the students in the class had Deaf parents. Through an interpreter provided as a part of the school visit, she could see how communication was flowing. The children were able to communicate fluently, similarly to what one may expect in a preschool for hearing children. From that moment, it was obvious to her that she needed to learn ASL. As a result, ASL became the language of their home. Throughout her schooling, her daughter was no different from those who grew up with ASL in a Deaf home, excelling in her academics and continuing to go on to college.

FACTORS CONTRIBUTING TO LANGUAGE DEPRIVATION

These two examples point to the importance not only of early access to language, but also to a language that is fully accessible to enable quality communication. It is the kind of language experience that is too rare for many deaf children. Too many deaf children are hobbled by unnecessary language deprivation simply as a result of not having access to high-quality language in their environment they can easily understand and readily use. One effective way to resolve deaf children's limited access to spoken language is by making a connection between the deaf child and a signing community (such as the hearing mother described above). It is through sustained and meaningful communication that spontaneity of language development is triggered. Slobin (1977) refers to the four "charges to language"—that it be clear, humanly processible within the ongoing time, quick and easy, and expressive. We need to consider how to address the mismatch between the language many deaf children are exposed to (both at home and at school) and their unique psycholinguistics needs (the kind of language they need that meets Slobin's four "charges to language").

Most deaf children arrive at school with limited signing skills and communication development, which is often idiosyncratic (see Goldin-Meadow, Mylander, de Villiers, Bates, & Volterra, 1984). The pattern and extent of language development depend on various factors. Families vary not only in how they respond to the limitations they have in communicating with their deaf child, but also in the information they are provided about Deaf people, the needs of a deaf child, and how to best support their children's development (Eleweke & Rodda, 2000; Li, Bain, & Steinberg, 2003). Commonly, they are provided with a list of options and resources by professionals, which are typically medically focused, and the bias the family already has is often reinforced by the bias that professionals have (Bat-Chava, 2000). Professionals often reinforce within parents the desire that their deaf child will become "normal" and be like everyone else in the family. As a result, many

deaf children spend much of their childhood years being required to participate in intensive training in speech and listening, which is often perceived as a necessary procedure to support their language acquisition.

The progress in spoken language development is often slow and reflects the struggle deaf children have with oral-based communication. Further, the arduous progress of spoken language development impacts the extent and frequency of communication that the child *could* participate in. Families vary in how they respond to constricted communication with their deaf child. One common recourse is to use gestures, commonly known as “home signs” (Frishberg, 1987), to augment piecemeal oral-based communication. Often, only one family member (Pressman, Pipp-Siegel, Yoshinaga-Itano, & Deas, 1999) assumes a greater role in communicating with the deaf child, with some family members sometimes making little to no effort to engage. Because communication is laborious, communication is often reduced to the basic necessities, and the child’s ability to participate in family conversations is limited. Deaf children growing up in an environment where communication is constricted are often the ones who struggle with reading/writing, and from our experiences, often the ones who also dread going to reading and writing class.

OPPOSING PHILOSOPHIES ON LANGUAGE DEVELOPMENT AND DEAF CHILDREN

Obviously, learning will be limited if the child’s language is limited. It is a major dilemma in deaf education. Children’s education is held hostage by the level of language skills they have. A big issue in the field has been the persistent belief that deaf children will be better off learning spoken language and that the skills associated with spoken language are crucial for deaf children to succeed. There are several premises that underlie this belief: Learning to read is difficult without knowing spoken language; the best time to learn spoken language is during the early years; and learning signed language interferes with the prospect of learning spoken language. The arduous process of language development through the oral method of communicating is seen as a small price to pay if (and this is a big “if”) it means a deaf child ends up learning to speak and is, as a result, able to access spoken language to develop reading skills and achieve academic success (Perfetti & Sandak, 2000).

The debate on the merits of spoken language development at the expense of signed language development during the early years has been going on for a long time. At times, it becomes contentious. War rages between those who espouse the virtues of language development in the oral mode and those who espouse the virtues of language development through the visual modality. Some educators (e.g., Bornstein, 1973; Denton, 1970) argued for a compromise by bringing both spoken language and sign language together by using them simultaneously (i.e., Simultaneous Communication), but this actually compromises each language, foreclosing children from exposure to a fluent model in either language (Kluwin, 1981; Marmor and Petitto, 1979).

However, both the advocates of signed language and the advocates of spoken language agree that the early years are foundational to the child's later success in school, reading, and life in general (e.g., Geers et al., 2017; Humphries et al., 2012; Kuntze, Golos, & Enns, 2014). What they cannot agree on is the modality of communication. The bone of contention for the advocates of spoken language is that the development of spoken language competence during the early years is needed to lay a foundation for future success. For the advocates of signed language, academic and social-emotional success is based on easy access to the language and communication that occur through signed language. Easy access to communication provides deaf children with the necessary foundation of vocabulary, world knowledge, and thinking skills. We need to start asking honest questions about what happens during the foundational years to trace the source of the problem. How do we prevent language deprivation for deaf children, and how can we best help those that are already language deprived?

One common misconception in this debate is that proponents of early access to signed language are against deaf children learning spoken language. They are not. In fact, some professionals are now promoting a bilingual-bimodal philosophy to address the needs of deaf children who can access spoken language (Nussbaum, Scott, & Simms, 2012). The issue at heart is that language needs to be fully accessible, so the child may have a tool for building world knowledge, cognitive skills, and literacy skills (Humphries et al., 2012; Kuntze, 1998; Kuntze et al., 2014). If language is visually based, it means deaf children will have access to everything that language has to offer. It has never been a question of whether deaf children should speak or sign. They should, by all means, have an opportunity to develop spoken language skills if they so choose and if they have the aptitude. The issue is that they should not be *denied* access to a visually based language.

Advocates of spoken language development, even if they support sign language, still opt for a wait-and-see approach. Because they have a bias that spoken language is preferable, they want to see first if the deaf child will develop speech. The rationale has been that the best time for developing spoken language is during the early years (Sarant, Holt, Dowell, Rickards, & Blamey, 2008). The same rationale is usually also used to support the argument that learning spoken language is already challenging for deaf children and that exposure to signing would distract and/or prevent children from learning spoken language (Geers et al., 2017). This reasoning is based on the assumption that if deaf children are able to learn sign language at a later age, there is, therefore, no urgency for the child to learn sign language at an earlier age. It is true that deaf people may be able to learn sign language later, but it means having missed the critical period for language acquisition and possibly not ever being able to achieve complete mastery (Mayberry, 2010). This means they will likely never catch up. Also, what is very concerning are gaps in language development created by the lack of access to a fully accessible language (i.e., signed language) while these deaf children are struggling to learn spoken language. Still, many professionals encourage parents not to sign with their children out of the misinformed belief that it will hurt their deaf child's spoken language development.

Debbie: I remember at one point, meeting a mother who was excited to finally be signing with her 3-year-old deaf child. She did not try to learn ASL sooner because she was “afraid their audiologist would get mad at her.” She was frustrated with struggling to communicate with her child. But the audiologist had told her that learning to sign would negatively impact her children’s spoken language development and had discouraged her from learning to sign and using ASL with her child.

This brings to mind the recent debate in 2016 when Nyle DiMarco, a Deaf activist and winner of both *America’s Top Model* and *Dancing With the Stars*, began promoting a campaign through the Nyle DiMarco Foundation in collaboration with the Language Equality and Acquisition for Deaf Kids (LEAD-K),¹ on the critical importance of early access to ASL. The immediate and strong response from the A. G. Bell Foundation (AGB), albeit not supported by research, was that “the window for a deaf child to acquire listening and spoken language is much shorter than the window in which ASL can be acquired.” This implies that there is something about ASL that its acquisition during the early years is not as crucial as the acquisition of spoken English. That is misinformation. Language is language, and ASL is a language. Research has increasingly shown that the timeline and biological constraints in first-language acquisition also apply to signed language (e.g., Jasinska, Berens, Kovelman, & Petitto, 2017; Jasinska & Petitto, 2013, 2014; Kovelman Salah-Ud-Din, Berens, & Petitto, 2015). Further, nothing within the entire statement from AGB was substantiated by research. Bobbi Cordano (2016), president of Gallaudet University, acknowledges this in her response to the statement issued by AGB:

One of the most damaging misconceptions is that the timing of developmental milestones in spoken and signed languages is different, so it is acceptable to delay the child’s opportunity to learn language (ASL). In hundreds of studies over the past 50 years, Dr. Petitto and other researchers have conclusively refuted this myth. Studies show young deaf children exposed to signed languages achieve every milestone on the exact same timetable as young hearing children exposed to spoken languages. The signed and spoken language timing “windows” are identical (e.g., Holowka, Brosseau-Lapr e, & Petitto, 2002; Petitto & Holowka, 2002; Petitto & Kovelman, 2003; Petitto & Marentette, 1991; Petitto, 2009; Petitto, 1987; Petitto, Holowka, Sergio, Levy, & Ostry, 2001; Petitto et al., 2004; Petitto et al., 2001; Allen, Letteri, Choi, & Dang, 2014).

Even in the face of research supporting the importance of early exposure to signed language, there is research that keeps stoking the fires in the intense debate between both camps. For example, the findings of research conducted by Geers et al. (2017) suggest that children without exposure to sign language achieve better speech recognition, speech production, and literacy skills than those who had been exposed. Research like this encourages the perception that deaf children should be restricted from access to signing during the early years. Yet, the basic assumptions behind the study are problematic.

First, the authors do not define what they mean by “sign language.” Rather, they lump together all the children who are exposed to some type of signed

vocabulary. This means that some participants in this study may have had limited exposure to signs, ranging from exposure to only a few signs to signs added to speech or signed sentences made in English grammatical word order. They also did not examine the quality or frequency of signs to which they were exposed. The participants' hearing parents may or may not have taken a sign language class, and may or may not be signing accurately. The extent of signing used at home may have varied widely. Maybe only one parent knew some signs. Given the variance in the population of deaf children who are exposed to signed language, any study that tries to treat children, their parents, and signed language as one group is problematic. Further, when a study like this is published in *Pediatrics*, it helps perpetuate the bias that already exists among the medical professionals and others that spoken language development at the expense of signed language development is the preferred approach.

This debate truly is baffling because denial of access to signing can also be easily construed as restricting deaf children's cognitive, linguistic, academic, and social-emotional development (Humphries et al., 2012). More baffling is why anyone would want to deny the child access to a language that is natural and that helps make learning, and ultimately life, easier and more enjoyable.

Debbie: I saw it happening even among well-educated hearing parents who placed a high premium on their deaf child's education. Sometimes they put blinders on as to how well their child was truly communicating. I remember sitting in an IEP (an individualized education program) meeting one time, and the parents were speaking to their hard of hearing child. The child was smiling and nodding in response to the parents. But then he would turn to me and sign, "WHAT DID THEY SAY?" Parents or educators like this want to believe they are doing what is best for the child; but in reality, it is perhaps only what they *think* is best.

We need to work together to prevent language deprivation from taking root. The task of learning written language naturally will be almost impossible if the child does not have a foundation in *any* language. Our position is that we need to put a premium on a language that a child can learn with ease, and access to visually based language is the only way deaf children may have full access to language.

THE INTERTWINING DEVELOPMENT OF LANGUAGE AND LITERACY

Researchers are often interested in the extent to which deaf children are reading at grade level at a given time in a given educational setting. Often, their findings of how well (i.e., poorly) deaf children are reading are used to compare educational settings/approaches. Yet, this is not a valid way to evaluate programs or approaches. For example, the average reading skills of children attending bilingual programs (e.g., ASL/written English in the United States) are used to cast doubt on the effectiveness of ASL/English approaches in the classroom. However, what is rarely acknowledged is that children, more often than not, transition into these programs only after they have "failed" in other educational settings and, as a

result, have already become severely linguistically delayed. Further, this snapshot picture of students' reading abilities does not tell what we really need to know. It does not help us understand the extent to which children can *improve* in reading. In order to truly assess deaf children's reading skills, we need to first understand the background of the child—the language exposure, the manner of communication at home, and the child's history of educational placement. We then need to periodically assess their reading over a certain time period to truly understand their progress.

As of now, the reading development of many deaf students is mired in the low levels of reading competency, as measured by standardized tests. The common and pervasive assumption about the struggle in reading development is that it is caused by the students' limited skills in spoken language. We need to shift this thinking and look at it as a problem that stems from the lack of access to fluent, accessible language. We also need to discard another common notion that learning to read is simply difficult for any deaf child "no matter how you cut it."

Marlon: I have always wondered where my good English skills came from and whether I have something in common with other deaf people who have good English skills. I can say I read well because I have good English skills. But, at the same time, I can also say that I have good English skills because I read. It seems like a circular argument. However, if we frame the process of learning to read and write as a process of language acquisition, then the impression I have of my experience learning to read and write really makes sense to me. The possession of English skills and the possession of reading skills are really the same kind of possession. At times, I have asked deaf people who, like me, do not have access to spoken English to explain how they came to have good English skills. The responses, invariably, are as follows: "I read well because I read" or "My English is good because I read." Others echo what I have said to myself: "I do not remember ever having a struggle learning to read. It is as if the skill to read comes naturally." However, they often emphasize, saying, "I have good communication interaction at home; I went to school where I could easily communicate with peers and teachers; and I enjoy reading." I believe this is the key. The common ingredient is access to language.

Too many deaf students are progressing from kindergarten to high school without gaining much traction in reading development. Literacy development obviously depends on language development. However, a common understanding of the relationship between language and literacy is usually oversimplified, resulting in an assumption that it is necessary to first learn spoken language, so that one can make the connection between language and reading. It is inconceivable for many people how learning to read can be possible without understanding how the sounds of language are represented by the letters in print (e.g., Wang, Trezek, Luckner, & Paul, 2008). The idea of deaf children learning to read without knowing spoken language, while reasonable to literacy scholars outside the field of Deaf education, is often paradoxically inconceivable for many people within the field of Deaf education.

Marlon and Debbie: Both of us remember attending literacy research conferences over the years (not specific to Deaf education), where we presented and engaged in discussions as to how deaf children can achieve literacy success without access to sound. Upon explaining how this could occur, literacy researchers often responded, “Yes, that makes sense” or “I totally can see how that would be possible.” Yet when having similar discussions with some researchers in the field of Deaf education, we are met with resistance. It is ironic that even though I (Marlon) am living proof that deaf people can be skilled readers without accessing sound, many still believe (and argue vehemently) that deaf children learning to read without access to sound is unrealistic, and for some, unthinkable.

Our argument is that the simple fact that many hearing children do learn to read by making associations between spoken language and written language does not necessarily mean that there is no other viable way of learning to read and write.

Children can learn so much about print prior to learning how to read. Unfortunately for many deaf children, there is so much focus in early childhood on language *instruction*, rather than language *acquisition*, that exposure to print and literacy development are put by the wayside. Parents are hesitant, unsure, or unaware about reading with their deaf child because they may not know how to sign, communicate with their child, or know the value of reading with their child. They may not take time to point out to their children print in their environment, and the reasons for not doing it may be varied. It may be because they may believe that if their deaf child does not know spoken language, it may not be possible for them to make a connection to print. Or, it may be because the parents do not have a shared language with the child. When they try to help their deaf child with literacy, they may believe that the child needs to first acquire spoken language skills, or they think they first need to be fluent in sign language.

THEORETICAL PERSPECTIVES IN THE FIELD OF LITERACY

Historically, literacy educators and researchers believed in a reading-readiness approach to literacy. They believed that children were not developmentally ready to learn to read until they were 6 1/2 years old (Morphett & Washburn, 1931). The belief at that time was that exposure to literacy during early years was potentially harmful to children, and that they must wait until they were maturationally ready to learn to read. When they did learn, it was from sound-letter relationships. From that time, the field of literacy instruction developed into a pedagogy that is based on teaching reading systemically and sequentially. This contributed to how phonics-based approaches emerged (Chall, 1989). Interestingly, this perspective, drawn from the field of psychology, was simply accepted as fact, even though it was only based on one study. It was not until Durkin (1966) and then Clay (1966, 1975) started questioning the hitherto unchallenged assumption about reading that the views of early literacy development began to change. This influenced

what we now know today—that children can and do learn a lot about print prior to learning to read.

In the early 1980s, Teale and Sulzby (1989) coined the term *emergent literacy* to refer to “emergent reading behavior,” as described in Clay’s (1966) dissertation. This term captures all that children can learn about print during the early years prior to children’s conventionally learning to read. This ushered in a new era of understanding of the early phases of literacy development and research-based, developmentally appropriate practices for early childhood. Yet, many in the field of literacy instruction still cling to a reading-readiness approach to literacy development (NAEYC/IRA, 1998). Even today, within the field of literacy, there are still opposing views between the reading-readiness approach and a more holistic emergent literacy approach to literacy development. The focus on reading readiness emphasizes the development of skills in a sequential and systematic way (e.g., phonemic awareness, drill, and repetition) that children must learn before they are ready to learn how to read. In contrast, the opposing view places a greater emphasis on providing children with multiple authentic and holistic learning opportunities to provide the foundation for literacy (e.g., Duke & Pearson, 2002).

It is interesting and informative to compare the wars within the fields of literacy and Deaf education. Within the field of literacy, the war is between *phonics*, which teaches word-decoding skills before textual meaning, and *whole language*, which emphasizes textual meaning. Within the field of Deaf education, the war is between the oral approach and sign language approaches. In a phonics-emphasized approach, teachers often focus on practicing sounds in language through drill and repetition. In oral education, the emphasis is on drills on pronouncing spoken words. The drills for developing spoken words are often not used in meaningful contexts, such as by authentically communicating or learning something new about content. However, an important difference is that the drills for hearing students are for learning something about a language they already have acquired, while for deaf students, the drill is for learning a language they need to acquire. For deaf children, spoken language drills might become more of an exercise in speech rather than a meaningful learning activity.

Debbie: I remember observing children in an oral program practicing the word *elephant*. They were saying over and over, “EL-Eh-Fant”... yet no one stopped to ask them if they know what this word means. I thought to myself, “What about reading aloud stories, so children may enjoy, engage, and react? How can children truly participate in meaningful conversation if they are constantly worried that they will say something wrong?”

In contrast, a bilingual approach, emphasizing signed language in the classroom, encompasses more of a balanced approach to literacy. Using bilingual strategies, teachers are encouraged to facilitate the learning of written language in multiple contexts through authentic learning experiences. In both the field of literacy and the field of Deaf education, there are those with opposing viewpoints, and both camps strongly influence the educational experiences of children.

When emphasis is placed on decoding words, it is often at the expense of comprehension. Yet decoding is only one component to reading and does *not* equate to comprehension. As Goldin-Meadow and Mayberry (2001) state, “Decoding printed words phonologically can’t help if the deaf child doesn’t know the word in the first place.”

READING COMPREHENSION: A CRITICAL BUT UNDEREMPHASIZED SKILL

Debbie: I have seen many middle school students sign word for word, as their eyes track from word to word and sentence to sentence. They sometimes did it for a whole passage. When they had finished a paragraph, I would ask them what they had just read, and many were unable to answer the question accurately. I still see that today in the video data we analyze. Children are still using this approach and still unable to answer comprehension questions. The ability to speak or sign word by word does not equate to comprehension. Something needs to happen to help them make the connection to comprehension. Adults can help facilitate this connection through mediation if they are aware of strategies to do so.

Comprehension is key to literacy development. Unfortunately, too little time is spent in the classroom to ensure deaf students are reading with comprehension. Sometimes, when teachers are running behind and their schedules get off, the time needed for ensuring student comprehension is one of the first things that goes. The effort to ensure that the students are reading with comprehension often involves working with them individually or in small groups. By probing individual students for comprehension, the teacher is able to determine not only the presence, but also the nature, of comprehension breakdown—be it due to missing background knowledge, unfamiliar vocabulary, or challenging grammatical structure. The information received from probing will help the teacher determine the best means of repairing comprehension breakdowns. When teachers model reading comprehension strategies or assist in the process of repairing comprehension breakdown, it helps the student not only better comprehend what is being read, but also helps the student gain knowledge of content, vocabulary, and/or grammatical structure. The time spent fostering development in reading comprehension with individual students is critical for literacy development to take place for any student, regardless of age or grade level.

Deaf children are primarily visual and engage with action, events, or elements in their surroundings most effectively through the visual mode. It is the chief mode by which they process and make sense of the world (e.g., Bahan, 2008). Yet, we have not fully explored the visual mode of learning in schools, especially in the domain of learning to read. Learning language through reading is one way of learning it through the visual mode. Having someone read a book in signed language or explain the meaning of a word in signed language is another way of providing the child access to the meaning by visual means. Watching a movie with subtitles is another method that is not fully utilized in the classroom to facilitate comprehension, particularly with older students.

Marlon: I remember a student in my freshman English class asking me to show the *Back to the Future* movie in class. He had the tape and already had watched it on his own multiple times. The students in the class struggled with English and reading. They learned ASL later in life, but after a number of years in the school where ASL was used, they could communicate adequately in ASL. My initial reaction was that we needed to stick to the lessons already planned. I eventually found a “legitimate” reason for the class to watch the movie. Unexpectedly, the students asked me to stop the movie from time to time to explain what is happening. I explained in ASL what was said in the captions or provided background information in ASL, to help the students understand the story better. We ended up watching the movie several times, and the students continued to watch it on their own outside the classroom. Eventually, they were able to enjoy the story with a deeper comprehension. The experience has stayed with me as an example of an enjoyable way for students to learn English. They wanted to comprehend. The movie already tells a part of the story nonverbally. That, along with the captions explained in ASL, the students were helped in building their capacity to watch the movie independently and with comprehension.

Regardless of the amount of language children have access to both at home and at school, it is critical that children are exposed to all types of print to facilitate reading comprehension. Children’s meaningful and multiple opportunities with print in different contexts and reading/writing materials should be encouraged from birth, while language is simultaneously developing. For example, teachers can develop so many key literacy skills by exposing children to stories. Exposure to literacy can and should also happen in meaningful and natural ways during all activities. For younger children, this includes drama time, playing outside, snack time, field trips, going to the grocery store, etc.; for older children, this includes integrating reading and writing throughout all content areas, science, social studies, Deaf studies, and math. Language and literacy activities can and should be authentically connected, such as through theme- or project-based approaches.

MOTIVATING STUDENTS TO READ

There is not much discussion of or research into what motivates deaf children to *want* to read. Too little attention is paid to the types of materials provided for deaf children. One important component of the development of motivation to engage with print is through fostering a love for reading (e.g., Gambrell, 2015). It is critical to provide children with many high-quality types of reading materials with diverse characters from diverse backgrounds. Children are also drawn to different genres. Some children prefer informational text, such as books about bugs, cars, dogs, etc. (e.g., Duke, 2003; Duke et al., 2013), while others prefer stories. If we do not provide children with access to these different types of materials in early childhood classrooms, such as informational texts, magazines, newspapers, coupons, lists, books, etc., this could represent a missed opportunity to nurture children’s

interest—an important precursor for the motivation to read, know, and understand. Most people who enjoy reading can recall a pivotal time when they became hooked on reading. It may be a favorite picture book or favorite first novel. Most likely, it is because they are connected in some way to the characters or the content.

Debbie: I have a deep love for literature and believe that was instilled in me from a young age. Through every age and to this day, I turn to books for comfort and enjoyment. I remember one of my favorite books that you probably never heard of—*The Shy Ones* by Lynn Hall. The story is about a young girl who rescues an injured golden retriever. Both the girl and dog have issues with shyness and work to overcome them together. As a shy child and also someone who loves dogs, I particularly connected with this female character and remember reading it over and over as a child. In fact, most of my favorite books were those with female characters in leading roles (or dogs, come to think of it). Books have had a profound impact on who I am. As a white and hearing person, I have had no trouble finding books with characters with whom I could identify. What would my reading experience have been like if I had never had a book with a female character? Would I still have grown to love reading as much?

It is true that there are too few stories that give a compelling story that involves a Deaf protagonist, especially ones that represent diverse backgrounds that a Deaf reader can feel connected to (e.g., Golos & Moses, 2011). However, additional reasons that make a reader identify or feel connected with a protagonist can also apply to deaf readers.

Marlon: I still remember vividly being drawn to the abridged *Classics Illustrated* comic books (Jones, 2002). I read them over again and again when I was 8 or 9 years old. To this day, I can still recount the plot of each novel, like *The Count of Monte Cristo* by Alexandre Dumas, *Robinson Crusoe* by Daniel Defoe, or *A Tale of Two Cities* by Charles Dickens. I also recall the emotions I attached with the protagonist as he persisted through the tribulations and challenges that unfolded. The classic novels in an unabridged version, with their complex plots written for adults, would have been beyond my ability at that time. When novels are abridged and illustrated, like those in the *Classics Illustrated* series, it becomes possible for those stories, even with complex plots, to be accessible for me. Evidently at that age, I was still developing my knowledge of English. I was able to make use of the illustrations and the emerging storyline, to determine the meaning of the words and sentences in the dialogue balloons and the occasional narrator's notes at the top of the individual illustration panel. The way the conflict was resolved in each story often provoked me to think deeply about the story and made me wanting to come back to it. It is possible I was attracted to those stories because they depict how the protagonists tried to beat the odds and the adversity that befell them. Because I kept on wanting to come back to the same story, I was able to understand it more each time. Each time I came back to it, I developed

my knowledge of English, both in breadth of vocabulary and complexity of grammar. As time passed and as my knowledge of English developed, I gradually broadened my reading to include materials that have fewer pictures or illustrations. I remember that at a later age, I was devouring each page of the unabridged version of Jack London's short story "To Build a Fire" which again is about a protagonist up against an adversity.

Ultimately, to help motivate children to read and foster a love for literature, they need to see both themselves and others in literature and print (e.g., Bishop, 1990). It is critical that teachers provide high-quality books with diverse characters for students of all ages. This includes Deaf characters and those from diverse cultures, genders, sexual orientations, disabilities, and ethnic backgrounds.

TECHNOLOGY AND MEDIA

Deaf children's access to signing and learning to read through signing are fraught with geographic and demographic variables that may be challenging to surmount. Many are born to unwitting parents who are totally unprepared to raise a deaf child, much less to create a signing environment in which to raise the child. When the family lives in a rural or remote area, resources are limited for finding signers to help facilitate in-home communication with the deaf child. Further, many families who opt to learn signing may still end up unsure how they can help their deaf child learn to read. This is where technology has a potential role in facilitating deaf children's language and literacy development.

Media cannot replace live adults and peers who sign. However, it can be an effective supplemental tool (e.g., Golos & Moses, 2013). For example, programs such as *Peter's Picture* (Golos, 2010) showcase Deaf adults and deaf children learning language and literacy by interacting through ASL and also integrate an interactive component that encourages viewer participation. Hearing families and their deaf children need to see what interaction in signed language (here, ASL) looks like, and how it helps make communication so effective, and how it can facilitate literacy. Recent apps in ASL have also been created, such as the VL2 app "The Baobab," as well as ITV's *Signed Stories*, which allow children to interact with the sign and text.

More recently, a new genre of video has shown up, the *Hands Land* videos, which present songs in ASL, promoting the development of ASL rhythm and rhyme. The rationale is that those activities help nurture awareness of the structure and shape of ASL signs, and it is based on the premise that those activities help bolster competence by providing foundational ASL skills such as ASL "building blocks" (e.g., Moses, Golos, & Holcomb, 2018). These types of resources could serve as models of how resources may be developed for deaf children and their hearing parents in other countries worldwide.

Many deaf children do not meet a Deaf adult, and almost as often a deaf peer, until they are older (Marschark, Lang, & Albertini, 2002; Weisel & Reichstein, 1990). There are unsettling anecdotes about some deaf children thinking they will become hearing when they get older or that they will not survive into adulthood.

Children need to be able to see and realize that there are many successful Deaf people out there—Deaf people of all age ranges with different abilities in a broad range of careers. They need role models to look up to (e.g., Cawthon, Johnson, Garberoglio, & Schoffstall, 2016), and children need to see what communication in fluent signing looks like. Exposure to linguistic and cultural role models can inspire them to push the boundaries of their communicative world and achieve academic and social success. However, recent evidence suggests that early childhood educators in the United States are not incorporating linguistic or cultural Deaf role models into their classrooms on a consistent and regular basis (Golos, Moses, Roemen, & Cragen, in press). Again, technology as a supplemental tool can help fill this void.

All children need early access to fluent signers and exposure to language and literacy from birth. All children can benefit from role models they can look up to and learn from. One possible way to do this is to create resources that can be accessed on a global scale, similarly to what has been achieved with *Sesame Street*. *Sesame Street* was originally created in the United States to teach hearing children language, literacy, and prosocial skills and to provide access to literacy in the home to supplement whatever access they already have. This show, on the air since 1969, has proven hugely successful (e.g., Fisch, Truglio, & Cole, 1989). *Sesame Street* has now been co-produced internationally in over 100 different countries with different titles and adapted to fit the cultural and linguistic aspects of different countries, such as *Sisampur* in Bangladesh and *Rekov Sum Sum* in Israel (Cole et al., 2003). This is one example of how technology can be used as a supplemental tool to positively impact children's lives the world over.

CONSIDERING GLOBAL RESOURCES TO FACILITATE LITERACY

The issue of literacy development and the need for a strong language base for deaf students, as discussed in this chapter, applies worldwide. The situation varies from one country to the next, depending on how much access deaf children have to signed language in the home, how much signed language is used in schools, and the technological resources to which they have access. Written language also varies in orthography. Regardless of the variance, deaf children need a strong language base. They are biologically and neurologically capable of robust language development—the kind of development we routinely expect in a typically developing child. The only requirement is that the language be linguistically accessible (i.e., signed language) and that there are others who use it whom the deaf child can engage with regularly. There is no reason why deaf children in different linguistic contexts cannot learn written language; they only need a strong foundation in language and the presence of adults who can help mediate their interactions with print. The examples in this chapter are based largely on what we know about ASL and deaf children in the United States learning to read. It is expected that the variance in the success by which it may be carried out may, to some extent, be determined by the nature of the orthography of different written languages.

There is a need to spread worldwide the understanding of what a visuo-centric approach to development and learning may entail. Without such an understanding, it is difficult for people to depart from the audiocentric practices they have been holding on to or to realize the dubiousness of the assumptions that they have about deaf children, their struggle with language and literacy, and how best to help them. There is a lot to discover and learn that comes from changing perspectives. When the changed perspective is done globally, it could usher in a new phase in our field and give more people an opportunity to understand how the visuocentric approach to nurturing deaf children's development in knowledge, language, and literacy may be successful. It could also help us learn from strategies that will doubtlessly vary from one country to the next and from one written language to the next. It will be an immense step in our field to achieve a global discourse on how to support deaf children's development through signing and learning written language.

WHERE DO WE GO FROM HERE?

It is critical that more people engage globally with the issue of literacy as it concerns deaf students, particularly those in early childhood. The trajectory of the discussion on the topic of deaf children learning to read has historically been dominated by the assumptions about literacy that are informed by how hearing children learn to read. Further, these discussions have been led by hearing people. We need to share more stories of how different deaf individuals succeed as readers and writers. But most importantly, we need to make sure that Deaf people are a part of, and preferably leading, the dialogue.

We, as educators and researchers, should reach out to the World Federation of the Deaf (WFD), which represents over 130 countries and sign languages, to encourage the WFD members and leaders to become a part of the global discourse on literacy development. They have been active in advocating for the right of Deaf people worldwide to use sign language. Their position on the importance of early access to sign language is clear. In a WFD (2016) position paper, they stated that "quality education in the national sign language(s) and the national written language(s) is one of key factors for fulfilling the education and broader human rights of deaf children and adult deaf learners." A key argument in the WFD's position on sign language is that it is important for maximizing brain development, cognitive processing, and longer-term social and academic outcomes. The WFD has been active in the lobbying effort to advocate for the passage of the United Nations Convention on the Rights of Persons with Disabilities (UN CRPD), which was adopted by the UN General Assembly in 2006. CRPD was an important milestone globally for getting sign languages recognized as being equal in status to spoken languages and should be respected and promoted (see United Nations, 2006).

CRPD provides the WFD with an important global framework and mandate for the achievement of human rights for deaf people, and the WFD uses it in their advocacy and training. According to the WFD (2018), "approximately 56 million deaf people, 80% of the 70 million deaf people in our world today, receive no

education at all. Even when education is provided to deaf people, it is almost always inferior to educational standards and opportunities provided to hearing persons. As research has repeatedly shown, the importance of quality childhood early and primary education as well as accessible secondary, tertiary and lifelong learning cannot be understated." The WFD strongly believes that every deaf person has a right to bilingual education in which sign language is used as the language of instruction alongside the use of the written language(s) of the country where education takes place.

New perspectives and ideas about literacy development should be shared globally. We are aware of what we have developed here in the United States, but are unfamiliar with the types of resources that have been developed or may be lacking in other countries. Advances in technology provide increasing opportunities for sharing resources, and it is critical to work together globally. When we share information, we create an opportunity to help people depart from old ideas and perspectives and allow new doors to open to new insights and ideas related to literacy development and deaf children.

The internet and various web-based resources provide unique opportunities to make an impact on the global issue of language and literacy development for deaf children. Technology has opened our world and access to lives that we previously could only read about. Now we can see each other easily, no matter the physical distance, through Skype, Google Hangout, and Zoom. Platforms such as these allow for us to sign with each other in real time. Courses that we teach, videos and apps that we have developed, and presentations that we have given can be easily shared. Research-based best practices for teaching can be modeled. We do not need to reinvent the wheel, but we do need to communicate with one another. This fierce debate over language and literacy is happening now and not only in one corner of the world. We have more opportunities now to succeed than we ever had, if only we take the time to learn from one another. To create. To share.

What changes could happen if we band together?

NOTE

1. The Language Equality and Acquisition for Deaf Kids (LEAD-K) campaign is a national effort to end language deprivation in children who are deaf, hard of hearing, or deaf-blind and to promote kindergarten-readiness for those children. Deaf children frequently arrive at kindergarten without adequate language skills to undertake academic challenges.

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