Issues Related t Literacy as it Applies to Children Who are Deaf or Hard of Hearing

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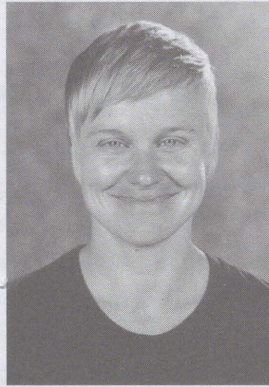Follow this and additional works at: https://scholarworks.gvsu.edu/mrj

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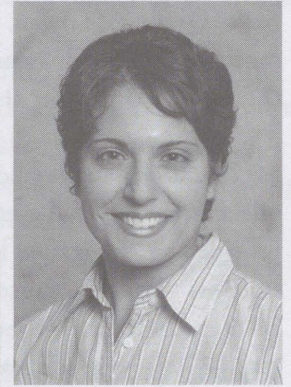
by Leala Holcomb, Debbie Golos, Ph.D., and Annie Moses, Ph.D.

Leala Holcomb   **Debbie Golos, Ph.D.**   **Annie Moses, Ph.D.**

In this critical issues segment, we interview Leala Holcomb, Debbie Golos, and Annie Moses about issues related to literacy as it applies to children who are deaf or hard of hearing. Leala is a doctoral candidate at the University of Tennessee, a member of the Deaf community, and an advocate for the quality of education of deaf children. Debbie is hearing, an associate professor of Deaf Education in the Department of Educational Psychology at the University of Minnesota, and studies emergent literacy, particularly as it relates to American Sign Language (ASL) and portrayal of deaf characters in literature and media. Annie is hearing, and is an associate professor in the Department of Education and School Psychology at John Carroll University. Her work focuses on the influences of early childhood settings and media on literacy and language development.

In this written interview, we start by asking the authors to help us learn more about literacy learning in the Deaf community in general. It comes as no surprise that this conversation naturally involves a lot of discussion around visual learning, the role of ASL, and bilingualism in literacy, but if you are not familiar with the benefits of sign language, keep reading! The authors also share great ideas and resources for teachers who do not know sign language, and many of their suggestions have been proven to be beneficial for both hearing and deaf students. Without further ado, we turn it over to the experts!

What would you say are the most important things for educators who have deaf or hard of hearing students in their classrooms to know about teaching reading to these students?

There are several important things for educators to know about teaching reading to deaf [1] children in their classroom. The first is that there is a Deaf culture and community, with a rich and long history, customs and traditions, language, visual and performing arts, literature (in both languages—ASL and English), and more. It is also important to recognize that, even in

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1 We use the term "deaf" in this article as representative of any individuals with a range of hearing levels, including hard of hearing individuals.

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early childhood, children are learning about who they are and about others' identities; and that identity connects with other areas of growth, such as in academics, including literacy. Just like any other cultural minority groups, deaf children's sense of self, self-esteem, and confidence thrive when they are given opportunities to learn about, connect with, and participate in Deaf culture and the Deaf community. American Sign Language (ASL, in the United States) is a critical piece of this. Its very nature, as a visual language, allows deaf children to acquire, understand, and use language quickly, naturally, and effortlessly from early childhood onward.

Related to this first point, the second important thing to know is that many deaf children can read and write fluently and have equitable access to literacy. For many, the link is through bilingualism in which a signed language, in addition to (or rather than) a spoken language, is the principal means of becoming successful readers. This means using a first language that is natural and fully accessible (here, ASL) to make connections to the learning of a second language (here, written English, and for some children, spoken language). Understanding this connection can frame the strategies, activities, and materials that a teacher might use to foster literacy in deaf children.

With these two points in mind, as we answer the rest of these questions, we will share the complex reality of many deaf children's backgrounds with language and literacy development as well as recommended strategies, activities, and materials for promoting their literacy development and learning.

How does language develop in Deaf populations?
Languages are as complex as humans, and the means of accessing and acquiring them are remarkably diverse, too. However, all children's brains process language as language regardless of whether the language is spoken or signed (Petitto et al., 2016). But, in order for language processing to develop without permanent delays or impairments, all children, hearing or deaf, need rich and early access to language that is fully accessible to them. This helps to develop a full-fledged cognitive

capacity to tackle complex skills required for subsequent literacy and academic learning. With inherent inaccessibility of sound and lack of systematic support for the inclusion of signed language, many deaf children do not have a consistent, natural, and rich exposure to language throughout their early years, especially during the critical period for language acquisition (Kronenberger, Pisoni, Henning, & Colson, 2013; Lederberg, Schick, & Spencer, 2013; Svirsky, Robbins, Kirk, Pisoni, & Miyamoto, 2000). As described by Hall, Levin, and Anderson (2017), "Language deprivation during the critical period appears to have permanent consequences for long-term neurological development. Neurological development can be altered to the extent that a deaf child 'may be unable to develop language skills sufficient to support fluent communication or serve as a basis for further learning'" (p. 1). In other words, not having full access to spoken language during early years may permanently impair cognitive abilities required for learning (Pénicaud et al., 2013). Recent evidence indicates the benefits of providing deaf children access to signed language along with spoken language (for those whom it might benefit) to prevent and/or mitigate the risks of detrimental effects of language deprivation (Hrastinski & Wilbur, 2016; Lange, Lane-Outlaw, Lange, & Sherwood, 2013; Mayberry, 2010). Unfortunately, most deaf children do not have a strong foundation in any language (i.e., language deprivation), which may explain noted gaps in reading achievement between deaf and hearing children throughout their schooling (Humphries et al., 2016; Traxler, 2000).

To provide additional background, approximately three in 1,000 babies are identified as deaf (National Institute on Deafness and Other Communication Disorders, 2016). More than 90% of deaf children are born into hearing families (Mitchell & Karchmer, 2004). In fact, less than 10% of deaf children have access to signed language at home (Gallaudet Research Institute, 2011). Approximately 40% of deaf children today have cochlear implants, and their speaking and listening abilities vary greatly (National Institute on Deafness and Other Communication Disorders, 2014). When surveyed, a sample of educational interpreters noted

that, although more than half of their deaf students had cochlear implants, only a small percentage (29%) were able to function independently in the classroom (Schafer & Cokely, 2016). These diverse cultural and linguistic backgrounds put deaf students on distinct pathways in their language and literacy trajectories.

While hearing technologies and surgeries such as hearing aids or cochlear implants along with long-term intensive therapies may help some deaf children gain partial access to sound, meeting language milestones in spoken language is highly variable for this population (Kral, Kroenenberger, Pisoni, & O'Donoghue, 2016). It takes years to intensively train the auditory pathways, teach the brain to make sense of the electric signals, and put meaning to sounds through the use of cochlear implants. Researchers have found that some deaf children do very well with listening devices and training, some deaf children do abysmally, and most fall in between; signed language mitigates the risk of language deprivation from oral-only approaches (Davidson, Geers, Blamey, Tobey, & Brenner, 2011; Lund, 2015; Pisoni et al., 2008). However, the majority of families who choose these therapies are often instructed to not expose their deaf children to sign language out of the misguided belief that they would not learn to speak if they learned sign language (Hall, 2017; Humphries et al., 2016; Spellun & Kushalnagar, 2018). This myth, however, has been addressed with evidence showing that signing deaf children with cochlear implants either outperform or perform just as well as non-signing deaf children with cochlear implants (Davidson, Lillo-Martin, & Pichler, 2014; Hassanzadeh, 2012). Notwithstanding, approaches that are exclusionary of signed language are more common than not. As a result of each of these factors, the biggest obstacle for deaf children to accessing literacy continues to be the lack of full access to language. As Goldin-Meadow and Mayberry (2001) concluded in their meta-analysis on how deaf children learn to read, "The first step in turning deaf children into readers appears to be to make sure they have a language…" (p. 226).

Similar to hearing babies naturally learning to speak, when deaf babies are exposed to signed language during their early years, they meet universal language milestones (Anderson & Reilly, 2002; Petitto & Marentette, 1991) and can grow to achieve on- or above-grade-level literacy skills (e.g. Mayberry, 2010). The only outstanding difference in the development of language between deaf and hearing children is that signing children can produce their first words four months earlier than non-signing children, as hand coordination develops earlier than vocal skills. Indeed, hearing parents are using baby signs with their hearing babies to reap these advantages found in signing deaf babies (Pizer, Walters, & Meier, 2007). Interestingly, it seems to be more popular for hearing parents to sign with their hearing babies than for hearing parents to sign with their deaf babies (Doherty-Sneddon, 2008; Nelson, White, & Grewe, 2012).

Educators working with deaf students play a critical role in providing accurate, research-based information to families and understanding language acquisition and language learning processes. When teachers have a deaf student in their classroom, they often notice delays in their deaf student's literacy skills, and they may believe that this is due to the student's deafness. This assumption is common but erroneous; most of the time, it is insufficient access to language (i.e., spoken language being inaccessible and lack of signed language exposure) from birth, not deafness itself, that stalls deaf students' literacy development. Therefore, to advocate for deaf students' needs, teachers need to possess the requisite understanding that deaf students should have, but may not have been given, appropriate and full access and support to develop strong foundations in a language. Furthermore, signed language can effectively serve as a bridge to literacy acquisition and success. Knowing that deaf children exposed to ASL at a young age can achieve on- or above-grade-level literacy skills under the right circumstances may assist educators in understanding their deaf students' true potentials. For deaf children who are struggling with the development of spoken language skills and have not been exposed to ASL yet, know that it is not too late for them as even intermediate fluency in ASL boosts English literacy and overall language skills (Henner, Caldwell-Harris, Novogrodsky, & Hoffmeister, 2016). Deaf children who

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produce more ASL also produce more English (Scott & Hoffmeister, 2016; Wilbur, 2000). This knowledge makes a good starting point in developing a plan to facilitate deaf students' literacy development.

How does literacy develop in the Deaf population? Do deaf children need access to sound to learn to read successfully?

With a solid first language in place, deaf children may begin their journey towards becoming readers. Here, too, it may be helpful to compare and contrast deaf children's literacy development with that of hearing children. There are multiple areas that are critical to both populations for learning to read, such as vocabulary knowledge, reading comprehension, phonological awareness, and print awareness. Each of these contributes to reading success. There is a specific population in the hearing community that is notably similar to the Deaf community—the bilingual hearing population. Hearing bilinguals and deaf bilinguals are learning and using two or more languages in their daily lives and face stigmas and barriers in using their heritage or native language. Hearing bilinguals and deaf bilinguals face monolingual biases in assessments and education where there are existing assumptions that dual language input confuses and burdens bilingual children. Furthermore, it is expected that bilingual children's language development trajectory should be identical to monolingual children (Ebert & Kohnert, 2016; Verhoeven, Steenge, & van Balkom, 2011). Empirical findings suggest otherwise. Bilingual children naturally develop two separate linguistic systems (Bialystok, Craik, & Luk, 2012). They can learn vocabulary at the same rate as monolingual children; however, their vocabulary knowledge evaluated in the dominant language may lag slightly as they are learning words in two languages (Hoff & Core, 2015). Hearing bilinguals and deaf bilinguals share comparable outcomes in which having a strong first language is a significant predictor of success in developing literacy and academic skills in a second language (August & Shanahan, 2017). The difference for most deaf children rests in the use of signed language as a means of acquiring a written language, as opposed to or in addition to spoken language, and the extent to which access to sound contributes to these developmental processes.

There are significant findings that indicate the existence of a strong relationship between ASL proficiency and overall literacy skills (Dostal & Wolbers, 2014; Hrastinski & Wilbur, 2016; Mayberry, del Gudice, & Lieberman, 2011; Scott, 2015; Strong & Prinz, 1997). Along these lines, deaf readers can successfully learn to read without having access to sound-based approaches to literacy, provided that they have a strong foundation in a language (Mayberry, del Gudice, & Lieberman, 2011). For instance, a recent study looked at the effects of ASL proficiency on different areas of academic attainment of 85 deaf students from grades 6 through 11 in ASL/English bilingual programs (Hrastinski & Wilbur, 2016). ASL proficiency was the only variable that significantly predicted reading, language, and mathematical scores. When other variables such as having cochlear implants, home language, and age of enrollment were looked at, ASL proficiency still accounted for 35.7% of the variance in reading scores. As the authors noted, "What this indicates is that many of the variables that are often pointed to as relevant to reading and other academic outcomes for deaf students are not as important, even combined together, as ASL proficiency on its own. This finding suggests that some traditional practices may need to be reconsidered" (p. 164). Empirical evidence shows that tapping into the power of a signed language such as American Sign Language can inform the strategies, activities, and materials that educators utilize when working with deaf children.

Considering the importance of phonological awareness for hearing children (National Early Literacy Panel, 2008), researchers and educators have long debated whether sound-based phonological awareness is also critical to support the development of deaf readers (Easterbrooks, Lederberg, Miller, Bergeron, & Connor, 2008; Mayberry et al., 2011; Wang, Trezek, Luckner, & Paul, 2008). Fingerspelling (i.e., the manual spelling of the alphabet on the hands) has been identified as one way to access to phonological awareness that is visual-based and is among the ways that children can make connections between ASL and written English. Such findings continue to challenge the traditional interpretations of what access to literacy (without sound)

means for deaf readers. This can occur at the word level (i.e., making connections between the signed word, fingerspelled word, and English print) all the way down to the letter level (i.e., connecting a fingerspelled letter with English print). This can foster children's decoding skills and also help to bridge languages (Baker, 2010; Haptonstall-Nykaza & Schick, 2007).

Based on 20 years of cognitive research, Petitto and colleagues have proposed a new way of thinking about literacy development: "the crucial link for early reading success is not between print and sound, but between print and the abstract level of language organization that we call phonology—signed or spoken…" (2016, p. 367). From their perspective, the association does not always need to be between print and sound, but, rather, between phonology in any modality and print. Other researchers studying phonological awareness in deaf children have made a similar claim, "Having a strong phonological foundation in any language may be more important than the modality through which it is realized…" (McQuarrie & Abbott, 2013, p. 96).

This evidence has led to a new direction of focus, that of ASL phonological awareness, which builds upon the understanding of sighted deaf individuals as "visual beings" (cf. deafblind individuals are tactile beings). ASL phonological awareness is similar to phonological awareness in any languages where students study and demonstrate knowledge of the smallest units of words. ASL phonological awareness is the study of five parameters (smallest units) found in a signed word (i.e. handshape, location, movement, palm orientation, and non-manual markers). It also relates to the belief that phoneme-to-letter mapping (or phonics) is not the only way to learn to read and write (Petitto et al., 2016). When researchers have looked at this particular topic, their results also reinforce the consistent finding that overall language proficiency, either in ASL or English, is the best predictor of reading ability among deaf people (Chamberlain & Mayberry, 2000; Pinar, Dussias, & Morford, 2011). Therefore, phonological awareness still may have a key place in deaf children's learning to read, with ASL phonology and fingerspelling serving as a connection to print in addition to, or in place of, spoken

phonology. Knowing this can guide educators' practices with deaf children to promote literacy development.

Question: What can teachers do to promote literacy if they have a deaf child in their classroom?

Because there is such a strong relationship between ASL skills and literacy, an accurate understanding of a deaf child's language levels is essential. A deaf child needs to be assessed by someone fluent in ASL, and a teacher can advocate for this assessment. The individual conducting the assessment would have knowledge about language and literacy development in the bilingual population and the context of deaf children. Although relatively new, schools and programs adhering the ASL-English bilingual philosophy are using standardized assessments to assess ASL skills (i.e., the ASL Receptive Skills Test, Enns, Zimmer, Broszeit & Rabu, 2013; the American Sign Language Assessment Instrument, Hoffmeister et al., 2014; the Visual Communication and Sign Language Checklist; Simms, Baker, & Clark, 2013). These instruments require specifically trained individuals to administer and interpret them to provide valid results, and they offer data that educators and others can use to make more informed and appropriate decisions for the education of deaf children.

In regards to standardized English literacy assessments, most literacy assessments have been developed for and normed based on children who have full access to sound from birth. Therefore, they may be invalid and biased measures for deaf children. There are some assessments that have been adapted for the deaf population (e.g., the Test of Early Reading Ability—Deaf or Hard of Hearing; Reid, Hresko, Hammill, & Wiltshire, 1991), but since the deaf population is low incidence and highly variable in their language access experiences, teachers should be cautious in interpreting any assessment scores for deaf children. Therefore, obtaining signed and written language samples of their work in addition to using both ASL and English standardized measures would be beneficial when assessing deaf children's language abilities. Finding adults who are fluent in ASL and English to provide proper evaluations of deaf children's language skills would provide a more accurate picture of their situation.

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With this knowledge in mind, teachers can properly plan and teach deaf children literacy. As will be familiar to any teacher, a priority in early literacy instruction is shared reading. This is when highly-methodological bilingual strategies are used to teach deaf children to read. Exposure to and engagement with high quality texts matters for deaf children, like the hearing population. Through frequent opportunities to participate in guided, shared, and independent reading, deaf children can learn new words, practice reading comprehension strategies, encounter information and ideas about the world around them, gain a love of reading, and more. Teachers can adapt strategies already known by using visual-based in addition to, or instead of, sound-based approaches so that deaf children learn about and learn from English print in more accessible ways. Commonly known strategies, among others, include:

- choose a text appropriate for "challenging but not frustrating;"
- hold discussions about the text before, during and after reading it, preferably through visual means;
- ask different types of questions appropriate to a deaf child's language level;
- make connections between the text and other texts, to self, and to children's prior knowledge or past experiences;
- model and elicit children's participation including predicting, thinking "aloud" in signed language, monitoring comprehension, summarizing, and other reading comprehension strategies;
- allow for and provide repeated reading of texts; and
- offer instructional activities before or after shared reading, such as role play and writing activities, to expand upon and reinforce skills targeted during shared reading (Allington, 2001; Duke & Pearson, 2002; Parkes, 2000; Pressley, 2006).

Research-based and culturally responsive strategies specifically used by educators with deaf population, when reading with deaf children, include translating English stories to ASL, keeping both languages (ASL and English print) visible at all times, and providing explanations in ASL about important English words to connect to grammar, concepts, and world knowledge

(Berke, 2013; Schleper, 1997). In addition, teachers can use chaining/sandwiching (i.e., signing a word, pointing to the word, fingerspelling the word and signing it again; Berke, 2013). To understand chaining/sandwiching, we need to return to the topic of fingerspelling. Deaf children attempt to fingerspell words as early as 13 months old (Padden, 2006), and as mentioned earlier, fingerspelling is one of the key approaches to teaching deaf students to read. Deaf parents fingerspell to their children from birth, and some research suggests that this is one of the contributing factors to deaf children's successful literacy development as the skill of reading a fingerspelled word is directly related to reading ability (Baker, 2010). However, in order to link fingerspelling to literacy, conscious, explicit, and frequent use of fingerspelling is needed. Fingerspelling can be used to highlight English vocabulary, link an English word to a concept or object, and move between ASL signs for concepts and meanings and connecting them to English print.

Relatedly, chaining is when teachers introduce or reinforce a concept using various combinations of multiple communication modes, including showing a picture, fingerspelling the English word, acting out, showing the ASL sign, sounding out the word, and writing or pointing to the English word on the board in a consecutive series. This approach may increase the size of students' vocabulary in both languages and foster the ability to associate signed words with fingerspelling and then with printed words. As deaf children learn to read, some of them "sound out" English words silently through fingerspelling and signing.

Additional literacy strategies specific to deaf children can be used to reinforce classroom themes and also show appreciation for ASL as a language. These include sharing ASL poetry, ABC, number, and handshape stories. These genres are unique to Deaf culture and ASL, and are part of the body of ASL literature. Deaf children and adults, if given opportunities, enjoy creating and sharing ASL literature, which also fosters literacy skills.

- ASL poetry is created in the same way as English poetry but on the hands, and it has poetic features
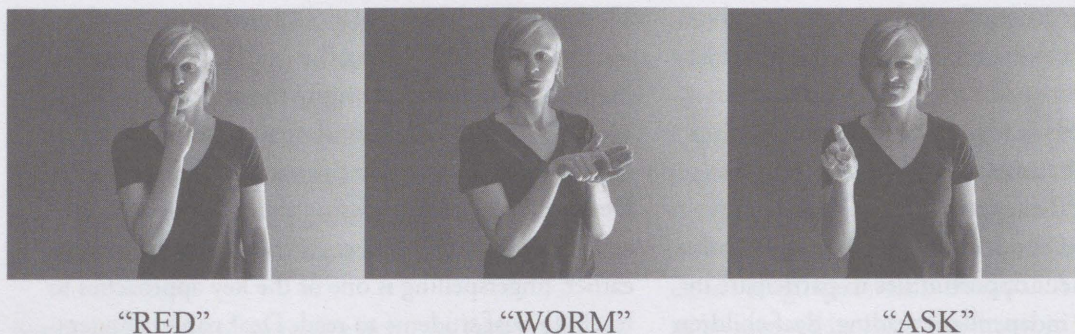
"RED"   "WORM"   "ASK"

Figure 1. Three signs showing the same handshape.

through the deliberate use of handshape, location, and movement of the hands.

- ABC stories are produced by telling narratives that follow the consecutive order of fingerspelled alphabets (i.e., A, B, C, D, E... handshapes). Similarly, numerical stories are stories told through the consecutive order of number handshapes (i.e., 1, 2, 3, 4, 5... handshapes).

Both deaf and hearing children alike are often enthralled by ASL literature, and it makes a great "hook" for instilling love for literacy. Here are some links to view collections of ASL literature:

- www.aslized.org
- https://www.youtube.com/user/RMDSCO/videos

Finally, teachers can incorporate ASL rhymes and rhythms as a way to play with language visually and develop ASL phonological awareness. Similar to hearing children's captivation with songs that have sound-based beats and rhymes, deaf children enjoy visual-based beats and visual rhymes. Visual-based beats are created by swaying the head and body to the rhythm of the signed words. Signed words can rhyme by putting together different signed words that share the same handshape, location, or movement. To draw a parallel, in English, rhymes can be found through repeated sound patterns such as "all" for "ball," "tall," and "fall." In ASL, an equivalent is repeated visual patterns in which signed words share the same handshape such as "x" for "red," "worm," and "ask" (Figure 1). Such language play in English makes learning language a fun experience for hearing children, and deaf chil-

dren can benefit from the same approach through ASL rhymes and rhythms.

What materials should teachers provide for deaf emerging readers?
Similar to hearing children, the types of texts and format of reading materials for deaf children vary throughout the day and across the curriculum. A teacher's classroom library includes different genres both in print and electronic. Beyond that, teachers consider the messages within those texts: Are deaf people included? If so, how are they depicted? To answer these questions, we examined the text and illustrations of picture books for young children that contain a deaf character (Golos & Moses, 2011; Golos, Moses, & Wolbers, 2012). Far more often, the books we studied depicted a deaf character as unable to do something or lacking something, whether it be friends, communication with loved ones, or joy and fun experienced in childhood. Far less often, these books portrayed the assets and successes of a deaf child, such as navigating daily tasks successfully as a visual being, participating and taking pride in the Deaf community, interacting with other deaf characters and showcasing the long and rich history of the deaf community, including their language (ASL), poetry and storytelling, theater and artwork, and more. This latter category is much more ideal. Here are some suggested titles:

- *Shay and Ivy: Beyond the Kingdom* by Sheena McFeely;
- *River of Hands: Deaf Heritage Stories* by Jason Brace and Kayla Bradford; and
- *Dina the Deaf Dinosaur* by Carole Addabbo.

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Because ASL is such a crucial component of literacy development, it is encouraged that electronic materials that include ASL videos be shown during instruction as they can support literacy instruction for deaf children and help hearing children gain appreciation of diversity in literature. Notable ASL media include Gallaudet's VL2 apps (e.g., *The Baobob*; http://vl2storybookapps.com/) and the *Peter's Picture* media series (www.peterspicture.com). Even more recently, the Hands Land media has been developed to foster the exposure of ASL rhymes and rhythms and the development of ASL phonological awareness skills in deaf and hearing children (www.handsland.com). These sets of media materials model fluent ASL while explicitly teaching early literacy skills, helping children learn to make connections between ASL and written English.

Interestingly, emerging evidence suggests that incorporating ASL into the classroom can benefit all children—hearing children and deaf—who use spoken language with little to no prior experience with ASL. For example, we randomly assigned hearing preschoolers to watch a *Peter's Picture* video in ASL with sound, watch a *Peter's Picture* video in ASL with no sound, or not watch a *Peter's Picture* video at all. We compared their scores before and after viewing on several measures. Children who watched the video in ASL and with sound scored higher on targeted ASL and literacy skills compared to those who did not watch the video or watched without sound (Moses, Golos, & Bennett, 2015). Similarly, Daniels (1994; 2004) found that hearing children's vocabulary knowledge and reading scores benefited from the incorporation of ASL into instructional activities, especially literacy instruction, throughout the day and over a school year. Although evidence with hearing children is preliminary, a visual language can also offer hearing children, especially those who are visual orientated, another route to learning literacy (Moses, Golos, & Bennett, 2015) and is worthy of further consideration by educators and researchers.

How can a teacher effectively work with an ASL/English Interpreter?

The majority of deaf children attend public schools (Office of Research Support and International Affairs, 2015). This means that at some point in a teacher's

career, the teacher might have a deaf student in their classroom. However, not everyone in public schools working with deaf students knows ASL or about Deaf culture, and they might not understand a deaf child's unique strengths and areas of need. This means the quality and quantity of support services given to deaf students can be life-changing, for better or for worse. While a teacher may not be able to provide services personally, they can certainly be an advocate for it.

One of the support services commonly used in mainstream education is ASL/English interpreters. These interpreters might be the only language models deaf children will encounter over the course of their education if they are not lucky enough to be connected to the Deaf community and be exposed to a variety of bilingual deaf role models. Therefore, interpreters can play a vital role in filling language and cognitive gaps if language deprivation occurred during students' early years, and can also support students' world knowledge. Effectiveness depends on proficiency in both language (ASL) and pedagogy, and it is encouraged that educational interpreters familiarize themselves with bilingual strategies in teaching deaf children to read (listed in previous sections) and are able to modify their interpretation to match the language level of the child. For this reason, high priority should be given to hiring interpreters who are highly qualified and certified interpreters with an additional background in educational interpreting. For example, if there is an interpreter in a teacher's classroom, the teacher can check with administration to make sure they are Registry of Interpreters for the Deaf (RID) certified.

Even with certified interpreters, there still are challenges for deaf students. For example, a recent study examining educational interpreters in a third grade classroom found that information about the teacher's message was changed (added or dropped, thus changing the meaning) 66.8% of the time (Wolbers, Dostal, & Bowers, 2012). This means the teacher cannot always assume, even if the interpreter is qualified, that the deaf student is getting 100% of the message. Also, teachers should keep in mind that although interpreters may be trained in educational interpreting, they are typically

not trained teachers. To ameliorate this issue, teachers can share their lesson plans with their interpreters and confer with them prior to teaching to ensure that they are on the same page.

In general, what can I do to increase respect, inclusion, and accessibility for deaf students?

There are many ways in which you can address these issues, such as:

1. Avoid using terms that are deemed offensive by the Deaf community, such as "hearing impaired," and use terms of pride and identity, such as "Deaf."

2. Look at deaf students in the eyes and talk directly to them, not to the interpreter (i.e., do not say to the interpreter "tell him/her/them that…").

3. Be mindful about giving the deaf student time to focus on a screen to access information presented there and then move their eyes to the interpreter to access information presented by this individual. This would mean that teachers do not talk and work on the board/screen simultaneously, as it is physically impossible for the deaf student to watch the interpreter and the board /screen at the same time. So, for example, if the teacher is using PowerPoint slides, then the teacher would give the students time to read/view the message before commenting on it.

4. Establish rules for turn-taking in small and large groups. Deaf students have at least a three-second delay in receiving information due to the inherent nature of the interpretation process. Level the playing field by pausing and giving deaf students time to access information and respond, if they want to participate in discussions. Ask student to raise their hands in small groups and wait until everyone is looking at them before commenting. Creative solutions can be a great approach to achieving equity in the classroom, such as using a chatroom where all students, including the deaf student, type in their responses, so no one is behind or left out.

5. Do not always rely on interpreters to connect with deaf students. Deaf students need, and often crave, direct connection with their teachers and peers to nourish their mental, emotional, and social well-being. This means sometimes bypassing the awkwardness of having a third party (interpreter) involved in conversations and finding ways to directly connect with the deaf student through gesturing, fingerspelling, writing/typing, and even better, basic signs.

6. Do not assume the deaf student's communication preferences. Ask them what they prefer. (Even if a deaf student can lipread, speak and/or sign, the child may choose not to for various reasons). Consider learning to sign, such as by taking an ASL class or utilizing free ASL online video courses (Table 1). Even if you do sign, an interpreter is still required.

7. Incorporate deaf role models into the classroom. Advocate for hiring them as teaching assistants or invite them to be guest speakers. This can benefit not only deaf students, but hearing students as well.

8. Hold high expectations for deaf students and find ways to ensure that they are connected to deaf role models and the Deaf community to build strong language skills, which in turn will unlock literacy for lifelong learning.

Where else can a teacher find relevant support and resources?

Support for teachers' reading instruction with deaf students can be found through various channels of resources, such as books, articles, websites, ASL/English e-books for children, as well as media designed for deaf children and include role models. Some have already been mentioned; others are included in Table 1.

Table 1

Web Resources and Descriptions

Resource / Web Address	Description
American Society for Deaf Children http://deafchildren.org/	• Provides resources for parents, families educators, audiologists and health care providers of deaf children to promote a positive identity.
ASL Nook www.aslnook.com	• Free media developed by a deaf family including their children modeling ASL storytelling and ASL instruction for common topics.
Hands Land www.handsland.com	• An all-deaf team aimed at developing educational media for young children, particular through the use of ASL rhymes and rhythms.
Laurent Clerc National Deaf Education Center's "Info to Go" http://www3.gallaudet.edu/clerc-center/info-to-go/literacy.html	• A one-stop resource covering topics such as ASL, Deaf Education, literacy, Deaf Culture, Interpreting and other related areas.
Peter's Picture media series www.peterspicture.com	• Free access to the Peter's Picture educational media series teaching language and literacy through ASL, also includes a summary of related research studies and suggested strategies for viewing the videos.
VL2 "Research Briefs" http://vl2.gallaudet.edu/research/research-briefs/	• A summary of research for specific language and literacy topics such as The Importance of Fingerspelling for Reading and, and Advantages of Early Visual Language.
National Association of the Deaf www.nad.org	• Oldest civil rights organization in the nation that is run by deaf people themselves. NAD does all kinds of advocacy work to eradicate discrimination and advance the lives of deaf people.

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