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Learners

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# Rethinking Literacy: Broadening Opportunities for Visual Learners

## Abstract

This article outlines a working model that is grounded in visual learning; it is a model for facilitating deaf children's acquisition of literacy. In our view, literacy is more than merely reading. It also encompasses the acquisition of knowledge and the development of cognitive skills that one needs for thinking, comprehending, and communicating. The perspective espoused by the proponents of "multiliteracies" is utilized to fashion a model that explains how deaf children's literacy development may be supported through ASL and various visual modes of learning. The model incorporates components of ASL acquisition, visual engagement, emergent literacy, social mediation of English print, literacy and Deaf culture, and a variety of media. Our goal is to broaden the current dialogue on the literacy development of deaf children by offering a model that is based on a fairly holistic concept of literacy, insights from a wide array of research findings and theoretical constructs, and recognition of the need to capitalize on deaf students' natural tendency to learn via the visual mode.

ONE OF the central topics in deaf education has been the question of how deaf students can develop better reading skills. Throughout history many approaches and methodologies have been

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devised in a quest to help deaf children become more skillful readers; however, most deaf children still lag behind their hearing counterparts. Various studies and reviews of research (e.g., Luckner 2008; Perfetti and Sandak 2000; Power and Leigh 1996; Schirmer and McGough 2005) serve as a reminder that this issue remains unresolved. The prevailing assumption is that limited access to spoken English is a major obstacle to deaf children's reading development, and the empirical evidence that hearing children's acquisition of reading skills is enhanced once they learn the connection between the sounds of English and print (e.g., Catts and Kamhi 1999) inadvertently bolsters that perception. However, it is important to note that this supposedly required relationship between sound and reading does *not* explain how some deaf children become quite proficient readers. The fact that deaf children of deaf parents usually do well in reading (Mayberry 2007; Hoffmeister 2000; Kuntze 2004) raises the question of whether an alternative route to literacy exists—one that is possibly more viable for deaf children. We need to account for how deaf children are able to develop reading skills without access to spoken English. In this article we offer a model that outlines a basis for literacy development through the visual modality.

It is well documented that deaf children's early exposure to ASL is critical to future literacy success (e.g., Mayberry 2007). In addition to early exposure to ASL, deaf children of Deaf parents might be more successful in learning to read in large part because of the "socialization" process, whereby their parents introduce them to the world of print (e.g., Erting, Thumann-Prezioso, and Benedict 2000; Maxwell 1988). The indigenous strategies that Deaf parents use to support their deaf children's reading development, although minimally documented, are examples of the practices that should be extended to the classroom. The use of ASL to help print come alive with meaning or the weaving of ASL, fingerspelling, and print into daily discourse are some of the examples much taken for granted in the discourse between deaf adults and their children. The creation of a rich communicative environment in which children are given access to numerous individuals and the opportunity for discussing a wide range of topics and making connections to English print may be just what deaf children need to become successful readers.

Although relatively little is known about how deaf children actually process print, we can surmise that, without access to spoken English, the strategies a deaf reader uses for decoding are most likely different from conventional (i.e., sound-based) strategies. In fact, research (e.g., Mayberry, del Giudice, and Lieberman 2011; Miller and Clark 2011; McQuarrie and Parilla 2009; Ormel et al. 2010; Ducharme and Arcand 2011; Ramsey and Padden 1998) suggests that deaf children may use visual rather than sound-based strategies in learning to read. It is very possible that many deaf children's slow progress in reading development is more attributable to the limited opportunities and inadequate support system for learning to read by visual means and less due to their limited knowledge of the sounds of English.

McQuarrie and Parilla (2009) challenge some of the long-held assumptions about deaf readers and phonological awareness. A unique aspect of their study is that it included distractor items to separate the acoustic, tactile, and visual features of the phonological judgment tasks. These tasks allowed for a more accurate analysis of how deaf students perform while doing phonological judgment tasks. Their findings indicate that deaf readers of all ages and within both poor and good reading groups were insensitive to phonological structure at the syllabic, rhyming, and phonemic levels. This refutes the claim that phonological development improves with both age and reading ability in deaf students and suggests that other factors, such as language skills (including signed language) and orthography, may contribute more to the reading abilities and difficulties that deaf students experience (*ibid.*).

Reading programs that emphasize the development of sound-symbol associations and the importance of prereading skills and drills may be diverting our attention from discovering little-understood but more viable strategies for deaf students. In this article we make a theoretical and empirical case for alternative routes to literacy by arguing that the conventional understanding of reading development blinds us to some of the more viable (i.e., visual) means of supporting deaf children's literacy acquisition.

### A Working Model to Support Visually Based Literacy Acquisition

An alternative pathway to competence in reading comprehension must take into consideration the developmental factors that contribute

to a child's readiness to learn to read, such as language acquisition and emergent literacy skills (e.g., Sulzby and Teale 1991; Teale and Sulzby 1989). For a deaf child, learning to read involves an additional dimension. It entails learning a *new* language as part of the process (Erting and Kuntze 2007; Kuntze 1998; Singleton and Morgan 2006). Even though some deaf children with the ability to access sounds may benefit from sound-based strategies for learning to read, we believe that all deaf learners, regardless of hearing ability, benefit from visually based strategies. The aforementioned model (see figure 1) comprises five components: (1) acquisition of ASL and the development of visual engagement; (2) emergent literacy; (3) social mediation and English print; (4) literacy and Deaf culture; and (5) media.

The theoretical underpinning of the visually based literacy model as discussed in this article comes from a broader view of literacy called "multiliteracies" (New London Group 1996), a concept that

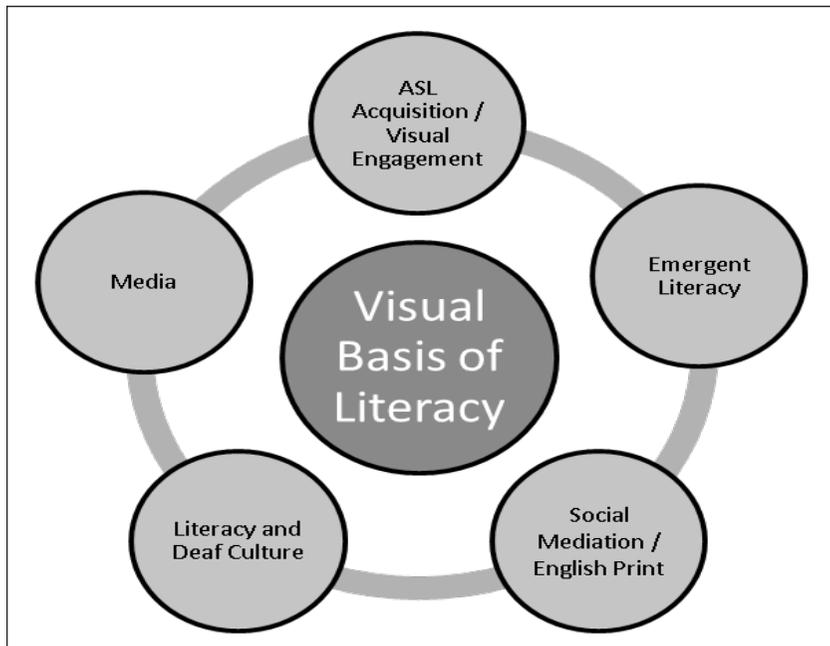


FIGURE 1. Visual basis of literacy.

emerged from a discussion of various literacy issues by a group of Australian, North American, and British academics who met in New London, New Hampshire, in 1996. The New London Group, as these scholars were known, declared that the conventional definition of literacy, based on “learning to read and write in page-bound, official, standard forms of the national language” (ibid., 60), was inadequate. They provided a framework to expand this concept to take into account the negotiation of a variety of discourses that is called for in literacy and literacy teaching today. The expansion of this concept focused on two main areas: the incorporation of multiple languages and cultures and the inclusion of various forms of text, including multimedia. In a multiliteracies framework, the teaching of literacy takes into consideration the increasingly diverse cultural and linguistic backgrounds of all students and the many new forms of technology that are available to them. The belief is that literacy teaching will be effective only if it expands beyond the traditional definition of linear, text-based literacy (“mere literacy”) and builds on the students’ multilingual competencies. An important aspect of expanding “mere literacy” into a multiliteracies context is the shift away from a singular form of language, determined by the standard form of writing, as the central focus of literacy teaching. In contrast, a multiliteracies approach has a broader focus. This creates a pedagogy where language and other representational modes are dynamic and in which users are constantly renegotiating meaning in a variety of contexts and for different purposes. In short, the New London Group argues that literacy teaching needs to incorporate and build upon students’ knowledge of nonconventional linguistic and cultural texts. Importantly, it should encompass the variety of text forms associated with new technologies, including visual images and their relationship to the meaning of a range of texts.

As previously mentioned, the model we propose is influenced by the multiliteracies perspective and grounded in the sociocultural theory of literacy development (Dixon-Krauss 1996; Street 1993; Barton 1994). It is also based on the assumption that deaf children, regardless of their home background or hearing ability, benefit from visually based learning. The findings in the literature are that proficiency

in ASL, a visual language,<sup>1</sup> is related to reading development and knowledge of English (Chamberlain and Mayberry 2000; Kuntze 2004; Hoffmeister 2000; Padden and Ramsey 1998; Prinz and Strong 1998). This claim supports the notion that the relationship is due to quality communication during early childhood, which is foundational for the development of various prereading skills (e.g., Dickinson and Tabors 2001; Hart and Risley 1995). A child does not necessarily learn language through explicit instruction but rather as a result of using it to satisfy social needs. Furthermore, the indigenous practice of Deaf teachers and parents who use ASL to socialize deaf children into becoming readers (Akamatsu and Andrews 1993; Ramsey and Padden 1998; Maxwell 1984; Erting and Kuntze 2007) is not well known, and as a result very few deaf children receive that type of support.

### The Model

The proposed model is founded on the premise that visually based learning works well with deaf children and should be capitalized on to support their attainment of literacy. Both the literature on multi-literacies (see Cummins 2006; Van Heertum and Share 2006) and a sociocultural view of literacy development in both ASL and English provide a theoretical basis for the support of deaf children's achievement of literacy through the visual mode. They need a nonconventional path to literacy. The five different components of the model discussed in the rest of this article overlap and interact with each other to some extent; however, for clarity, we discuss each one separately.

#### *Acquisition of ASL and the Development of Visual Engagement*

Language acquisition is an unconscious process that takes place in the context of communication. The quality of language development depends largely on the number of opportunities a child has for communicating with parents, siblings, peers, and other adults (e.g., Hart and Risley 1995). Deaf children have the same potential as other children for language development, but their communication needs have often gone unmet simply because a fully accessible (i.e., visually based) language is not present in their environment and because the language that *is* in their environment (i.e., auditory based) is not fully accessible. Deaf children need access to adults and peers with

whom communication will easily flow back and forth and without hesitations or misunderstandings. A unique and largely overlooked phenomenon is the development of eye contact or visual engagement, which is part and parcel of the ASL acquisition process. Deaf children need to interact with adults who understand the visual constraints of signed communication, and both parties must visually synchronize their conversation (Gale and Schick 2009; Spencer and Harris 2006; Singleton and Morgan 2006).

Deaf children from nonsigning environments do not come to school with the same level of visual engagement skills as deaf children from signing environments (Singleton and Crume 2010). With limited capacity for visual engagement (i.e., eye contact), they are initially at a disadvantage in their efforts to learn ASL within the confines of classroom discourse. The growth of this skill goes hand in hand with the development of language; thus some kind of visually based communication must be initiated in order to enhance children's visual engagement skills. For example, deaf adults employ various culturally sanctioned strategies to get deaf children's attention, such as tapping a child repeatedly, wiggling their fingers in front of the child, and moving into the child's line of sight (Maestas y Moores 1980; Waxman and Spencer 1997; Erting, Prezioso, and Hynes 1994; Erting, Thumann-Prezioso, and Benedict 2000; Gale and Schick 2009). Nondeaf parents will benefit by practicing these strategies, which also include learning how to establish and maintain eye contact when communicating with their deaf child.

Strategies for ensuring successful communication vary depending on the participants. It is necessary to take into consideration the language and visual engagement skills of each child, as well as how many people will be conversing. For example, teachers need not only to communicate with the children at eye level but also to use eye gaze appropriately. There is a gaze appropriate for communicating with children as a group as well as a gaze more suitable for communicating with children individually (see Mather 1987, 1989, for a discussion of individual versus group gaze strategies). Teachers should also be mindful of the need to arrange the seating in a semicircle when communicating with a group of students so that everyone has full visual access (Singleton and Morgan 2006).

The development of visual engagement skills has other benefits as well. One is that they help deaf children become more attentive to what is happening in their environment. As children develop, they need to learn how to appropriately direct their attention, especially as their social circle grows and as they increasingly understand the value of remaining aware of what is going on in their surroundings. The more children are able to manage visual attention and engagement skills, the more opportunities they will have for communicating, learning, and acquiring language and literacy.

### *Emergent Literacy*

An important factor in literacy development is what happens during the early years before children learn to read. The proponents of the emergent literacy perspective posit that language and literacy skills develop simultaneously (Teale and Sulzby 1989; Sulzby and Teale 1991) and that the needed attributes for later literacy start in infancy. Researchers who subscribe to this perspective have found that early experience with language, books, print, and extended discourse is crucial for later literacy success (e.g., Whitehurst and Lonigan 2001; Dickinson and Tabors 2001); they emphasize that adults play an important role in facilitating this development by engaging children in rich discourse and various literacy events as early as infancy. However, for deaf children, opportunities for optimal language growth are a critical component of emergent literacy. The ease and naturalness of language development through ASL help make possible the quality of communication and level of comprehension needed to achieve literacy. Meaningful interactions with print help sustain children's connection with books and thus with written English.

Research on the reading progress of deaf children with early exposure to ASL (e.g., those with Deaf parents) shows that their developmental stages are similar to those of hearing children yet may take place in a different modality (i.e., visual) (see Mayberry 2007; Morford and Mayberry 2000; Musselman 2000). High-quality, fully accessible language and literacy interactions with adults are essential for young deaf children's success. Researchers and educators of deaf children (Erting and Pfau 1997; Golos 2010a) propose that a preschool

classroom for deaf children be founded in a philosophy of emergent literacy and a framework of additive bilingualism, in which ASL and written English complement each other. For example, Erting and Pfau have recommended the following approaches: (a) metalinguistic awareness (i.e., helping children become aware of both ASL and written English); (b) effective strategies for shared reading, in which the teacher and the students make meaningful connections with print through ASL; and (c) writing that is facilitated by using ASL to discuss ideas and topics to write about. In essence, they and others (e.g., Golos and Moses 2011) advocate the use of social mediation to promote both language and literacy development in the preschool classroom.

#### *Social Mediation and English Print*

In an emergent-literacy preschool classroom, children are exposed to print before they are able to read. They learn about concepts of print (e.g., that print, images, and text on a page or on the walls all have meaning). However, the likelihood of children actually learning written English through exposure to print is dependent on whether they have adequate communicative access to others to facilitate their understanding of print (Mayer and Wells 1996). Emergent-literacy classrooms typically provide a good deal of social interaction. Teachers stimulate discourse during read-aloud sessions, ask children open-ended questions, answer the students' questions, and encourage the youngsters to talk about print throughout the day in various contexts. This social mediation helps facilitate children's understanding of a range of texts.

Social mediation also includes giving children the requisite scaffolding to achieve a deeper, broader understanding (Cole and Griffin 1986; Luke and Elkins 2000) of topics they want to learn about. Language development is often enhanced as a result of the new vocabulary, knowledge, and more mature or complex syntactic structures that are by-products of comprehension. Social mediation also helps develop cognitive strategies by exposing children to more advanced ways of thinking, ascertaining meaning, and interpreting information (Matthews and Cobb 2005). In essence, social mediation helps children accomplish more than they would if they were to do tasks on their own. As a result, they are able to make leaps in development.

A skillful adult should ideally mediate in a limited way in order to provide children with just enough scaffolding to help them fathom meaning as independently as possible. This could include the use of strategies such as posing open-ended questions or providing examples to help children deduce meaning. Social mediation should take place in a variety of daily activities.

The very nature of written English, which is used chiefly in non-social activities such as silent reading or communicating with an unseen audience, seems to preclude opportunities for its use in a social milieu. However, even though written English is not “live” in ways that natural language is, it can be brought into the social sphere through social mediation. One way of doing so is to call children’s attention to print in the environment (e.g., Bennett-Armistead, Duke, and Moses 2005). Printed materials on the walls (bulletin boards, children’s work, alphabet charts, labels, names, etc.) will be meaningless to children unless the teacher makes connections with them during the course of conversation. Similarly, the availability of various writing tools (e.g., markers, crayons, pencils) will be useful only if the teacher can entice children into wanting to use them to communicate (Williams 2004). Access to print and writing materials should be provided throughout the classroom to maximize the opportunities for teacher/child interactions in both languages.

One of the most important activities related to social mediation to support the emerging literacy skills is reading aloud (Trelease 2006). Reading “aloud” in ASL provides the teacher with an excellent forum for telling stories in a visual way, thus making them fully accessible. By utilizing both languages (signing in ASL and pointing to printed English), the teacher not only makes the story comprehensible but also helps children begin to make connections with meaning through written English. Using ASL allows the teacher to check the children’s comprehension of a story by inviting them to comment on or ask questions about it. The teacher is also in a position to call children’s attention to important elements of the story or to the ways that some of the events in the story parallel or contrast with what the children may already know or have experienced.

Finally the idea of incorporating text messages, graphic picture books, websites, video, and other new media into the lives of deaf

children through social mediation has been proposed as a way to provide young deaf students with more written English input at the conversational level (Smetana et al. 2009). Subsequently, higher-order thinking skills are nurtured when the children have access to a communicative system that allows them to engage in discussion about different elements of the text, such as cause/effect, implied meaning, metaphors, symbolism, logic, and narrative structure. Incorporating each of these strategies into the early childhood classroom provides a foundation for future literacy success.

### *Literacy and Deaf Culture*

The relationship between Deaf culture and literacy development may not be obvious, but it is nonetheless important. In her discussion of the fundamental meaning of culture, Ramsey (2004) maintains that the failure to incorporate Deaf culture into pedagogical methods is in great part responsible for the fact that deaf children are at a serious disadvantage when learning to read written English. Broadly speaking, culture is about inheriting the knowledge, language, and social skills of one's ancestors. Culture is not only cumulative over generations but also dynamic as knowledge, language, and ways of living change over time. Thus culture is continually evolving as each generation applies its own customs to the changing world.

Cultures vary mostly to the extent that they serve the particular needs of a given societal group. Deaf people's cultural solutions revolve mainly around life situations in which issues of communication, language, and access to knowledge need to be addressed. Deaf children must have a language medium that supports their development through the visual mode, and this is something Deaf culture is able to provide. Ramsey (2004) says it well when she states that we always have Deaf people in our midst who have already "invented a variety of cultural solutions and transmitted them to others" (55). Deaf children are entitled to access "the accumulated cultural inventions that boosted the intellects of previous generations" (ibid.).

The evolution of the languages of Deaf people worldwide has been determined by the ongoing process of trial and error in the pursuit of better ways of communicating. Deaf people have invariably gravitated toward the visual mode of communication; such a strong preference

has sustained signed language even in the face of adversity and served to drive its continual evolution.

However, Deaf culture is more than just signed language; it is also about “a visual way of being” (Bahan 2009). Ironically, in deaf education the fact that deaf children are by nature visually oriented has been historically marginalized in favor of focusing on a lack of auditory access. Thus, rather than emphasizing deaf children’s strengths, many people often perceive the lack of access to sound as a major stumbling block—a bias that resonates with individuals who have limited understanding of how greater access to the “visual way of being” could be beneficial to deaf children. The emerging scholarship on visually based ways of living has the potential to provide new insights into visually based learning that can benefit not only deaf learners—but possibly also the larger population.

The issue of providing deaf children with models of ASL and Deaf culture at a very early age is also critical to their development of identity. Positive self-identity fosters a sense of confidence in children, which in turn allows them to communicate their thoughts, ask questions, and express concerns (Holcomb 1997). This exposure to positive cultural role models is crucial for deaf children of parents who do not sign. Usually those parents are uninformed about Deaf culture. As a result, their deaf children need to rely on resources outside the family to expose them to Deaf culture, for instance by providing opportunities to interact with Deaf people and thereby foster positive self-identity (Stinson and Foster 2000). Traditionally, this has happened at residential schools that employ Deaf people as teachers, aides, or caretakers in the dorms (*ibid.*; Lane, Hoffmeister, and Bahan 1996; Parasnian 1996). However, nowadays the majority of deaf children go to public schools, where ASL and Deaf cultural models are often absent. In fact, the majority of deaf children from preschool through elementary school have never met a Deaf adult who is fluent in ASL. Many of these children may not even socialize with deaf peers. A lack of exposure to ASL and Deaf culture means less opportunity for healthy development of identity and self-esteem (Parasnian 1996; Corenblum and Annis 1993). It may also negatively affect their learning and social interactions and limit opportunities for the social aspect of reading development (Singer and Smith 2003).

Finally, another medium for modeling culture is pedagogy itself. If teachers, deaf and hearing, adopt the various literacy-development strategies we have discussed utilizing ASL and other visual means, they will also expose children to Deaf people's indigenous practices and knowledge.

### *Media*

Media, especially videotaped materials, may be an excellent means of bringing ASL and Deaf role models to those deaf children who do not have access to Deaf peers and adults. Recent studies demonstrate the efficacy of educational television in the development of prosocial skills (e.g., cultural knowledge, acceptance, self-awareness) in hearing children. Characters such as those on *Sesame Street* foster in children a love of learning that transcends physical, ethnic, and cultural boundaries (Fisch and Truglio 2001). In addition to *Sesame Street*, research on international programs such as *Sisimpur* (Lee 2008), *Rechov Sum-Sum* (Cole et al. 2003), and *Nashe Maalo* (Shocat 2003) suggests that viewing these programs helps children not only learn literacy skills but also develop a mutual respect for and a positive understanding of themselves and others. Educational media designed to help children become literate can also incorporate information about the history, accomplishments, and culture of Deaf people.

In addition, research indicates that watching educational programs has a positive influence on deaf children's literacy skills, especially their vocabulary. For the last two decades, researchers have supported the use of interactive videos with this objective in mind. One such study was the Cornerstones project. Loeterman, Paul, and Donahue (2002) selected materials from the program *Between the Lions* for adaption into ASL (and additional modalities such as text and voice-over) and created supplementary materials for teachers to use with the video clips. Their findings reveal that this project was effective in increasing the vocabulary skills of deaf children who participated (ages 6–10).

Another study (Golos 2010b, 2010c) indicates that, while viewing a video or a DVD from an educational video series (produced in ASL and written English), preschool deaf children were able to learn targeted vocabulary, grasp the story elements (i.e., main characters, setting, plot), acquire sequencing skills (Golos and Moses 2011; Golos

and Moses 2013), and engage in literacy behaviors (e.g., signing and fingerspelling targeted vocabulary; attending to text on the screen). There was also evidence that these behaviors increased after watching the video several times. These positive results occurred regardless of children's previous exposure to ASL.

Deaf adults employ various techniques through ASL to help children make meaningful connection with English print (Andrews and Taylor 1987; Akamatsu and Andrews 1993; Erting 2001; Erting and Pfau 1997; Padden 1991; Padden and LeMaster 1985; Padden and Ramsey 1998) and to facilitate interaction during book sharing, such as facial expressions, role-plays, and group and individual eye gaze (Blumenthal-Kelly 1995; Erting 2001; Erting and Pfau 1997; Mather 1989). These strategies can be used in educational media with positive results (Golos 2010b, 2010c; Golos and Moses 2011b).

Children's experiences with educational media are enhanced when an adult provides social mediation along with supplemental materials (e.g., Linebarger 2009; Golos and Moses 2011; Golos and Moses 2013). Data on individual viewing (Golos 2010b) indicate that, over a three-day period, children's engagement behaviors were higher with teacher mediation than without. These recent studies suggest that media may be used as a supplemental tool to foster deaf children's learning, particularly for those who have limited access to ASL. Today, advances in technology provide even more opportunities to strengthen deaf children's literacy development and to start incorporating these new strategies early in their childhood.

## Conclusion

Research on deaf children's acquisition of literacy has been largely confined to the theoretical frameworks that concern how hearing children learn to read. Theories of reading that are based on the association between written language and spoken language provide a conventional but damaging explanation of deaf children's struggle to learn to read. The lack of access to the phonology of spoken language is commonly considered a culprit (e.g., Perfetti and Sandak 2000). Assumptions about deaf children's reading abilities that do not take into account visually based strategies for literacy development and many

deaf children's limited opportunities to access these strategies inadvertently foster skewed notions about deaf children's abilities and needs.

Insights from studies on literacy development in an environment that focuses on building language and literacy skills through visual means provide perspectives that differ from those that come from examining struggling readers only through the lens of how hearing children learn to read. These insights come about only if we put aside the conventional assumption that written language follows spoken language and consider the possibilities for the development of written language skills that are independent of spoken language. The model presented in this article approaches deaf children's acquisition of literacy on the basis of their strengths. Deaf children thrive and organize the world largely through their eyes. After all, more than a century ago Veditz (1912), a Deaf educator, said, "Deaf people are first, last, and of all time, people of the eye."

Deaf children's prospects of achieving proficiency in written English and reading will be enhanced by appraising literacy in an expansive framework as proposed by the proponents of multiliteracies. A literate person is able to think critically about content and how to best communicate with a given audience. One becomes literate by processing content thoughtfully, carefully, and critically regardless of the language or modality. These cognitive aspects of literacy skills do not develop exclusively through reading, and we should think more about how literacy may be facilitated in a number of ways (see Kuntze 2008). Much remains unknown about the potential of ASL and other visually based forms of communication and media to support reading and written English language development. Deaf children's prospect of becoming literate should not be held hostage by the limited access they have to spoken English or by the "hearing"-sanctioned ways of learning to read. They should be provided an opportunity to become literate through whatever means works.

The utilization of visual approaches to achieve literacy will help ensure that additional components of the process are in place. That includes an appreciation of how the development of ASL and printed English skills can take place within the process of socialization (Erting and Kuntze 2007) and also incorporates the indigenous practices of

Deaf adults (e.g., Singleton and Morgan 2006; Maxwell 1984; Akamatsu and Andrews 1993), which is a resource waiting to be more fully tapped. If deaf children are enabled to ask about their reading materials, to find out more about them, or to get help (e.g., mediation) in making sense of them, they will become more motivated to engage with these sources of knowledge.

The state of the reading ability of deaf students calls for a radical departure from conventional practices in and assumptions about teaching deaf children to read. The number of deaf students struggling to read is unacceptably high, and we need to venture beyond current perspectives on language learning and literacy acquisition, which are largely based on how hearing monolingual children learn to read. Traditional approaches to reading instruction do not meet the needs of deaf learners. We need to modify our teaching approaches to capitalize on the strengths of deaf children as visual learners. We hope that the model discussed in this article offers the kind of perspective that will help educators of deaf students start thinking about literacy development that maximizes deaf children's inherent strengths and potential abilities as visual learners. The key to facilitating such a shift is to start conceiving of literacy acquisition in a broader framework.

## Note

1. "Visual language" here refers to ASL or any naturally occurring signed language. Visual tools for communication (e.g., visual phonics or cued speech) are not included in the definition since they access the sounds of language or representations of English but do not function alone as a complete language.

## References

- Akamatsu, C. T., and J. F. Andrews. 1993. It Takes Two to Be Literate: Literacy Interactions between Parent and Child. *Sign Language Studies* 81: 333–60.
- Andrews, J., and N. Taylor. 1987. From Sign to Print: A Case Study of Picture Book "Reading" between Mother and Child. *Sign Language Studies* 56: 261–74.
- Bahan, B. 2009. Sensory Orientation. *Deaf Studies Digital Journal* 1(1). Retrieved from [http://dsdj.gallaudet.edu/index.php?issue=1&section\\_id=2&entry\\_id=48](http://dsdj.gallaudet.edu/index.php?issue=1&section_id=2&entry_id=48).
- Barton, D. 1994. *Literacy: An Introduction to the Ecology of Written Language*. Oxford: Blackwell.

- Bennett-Armistead, S., N. K. Duke, and A. M. Moses. 2005. *Literacy and the Youngest Learner: Best Practices for Educators of Children from Birth to 5*. New York: Scholastic.
- Blumenthal-Kelly, A. 1995. Fingerspelling Interaction: A Set of Deaf Parents and Their Deaf Daughter. In *Sociolinguistics in Deaf Communities*, ed. C. Lucas, 62–73. Washington, DC: Gallaudet University Press.
- Catts, H., and A. Kamhi. eds. 1999. *Language and Reading Disabilities*. Needham Heights, MA: Allyn and Bacon.
- Chamberlain, C., and R. Mayberry. 2000. Theorizing about the Relationship between American Sign Language and Reading. In *Language Acquisition by Eye*, ed. C. Chamberlain, J. Morford, and R. Mayberry, 221–48. Mahwah, NJ: Erlbaum.
- Cole, C., C. Arafat, C. Tidhar, W. Z. Tafesh, N. Fox, M. Killen, A. Ardila-Rey, et al. 2003. The Educational Impact of Rechov Sumsum/Shara'a Simsim: A *Sesame Street* Television Series to Promote Respect and Understanding among Children Living in Israel, the West Bank, and Gaza. *International Journal of Behavioral Development* 27(5): 409–22. doi:10.1080/01650250344000019.
- Cole, M., and P. Griffin. 1986. A Sociohistorical Approach to Remediation. In *Literacy, Society, and Schooling: A Reader*, ed. S. de Castell, K. Egan, and A. Luke, 110–31. London: Cambridge University Press.
- Corenblum, B., and R. C. Annis. 1993. Development of Racial Identity in Minority and Majority Children: An Affect Discrepancy Model. *Canadian Journal of Behavioural Science* 25(4): 499–521.
- Cummins, J. 2006. Multiliteracies and Equity: How Do Canadian Schools Measure Up? *Education Canada* 46(2): 4–7.
- Dickinson, D., and P. Tabors. 2001. *Beginning Literacy with Language*. Baltimore: Brookes.
- Dixon-Krauss, L. 1996. *Vygotsky in the Classroom: Mediated Literacy Instruction and Assessment*. Reading, MA: Longman.
- Ducharme, D. A., and I. Arcand. 2011. How Do Deaf Signers of LSQ and Their Teachers Construct the Meaning of a Written Text? *Journal of Deaf Studies and Deaf Education* 16(1): 47–65. doi:10.1093/deafed/enq020.
- Erting, C. J., and M. Kuntze. 2007. Language Socialization in Deaf Communities. In *Encyclopedia of Language and Education*, ed. P. Duff. Vol. 8, *Language Socialization*, 287–300. Berlin: Springer.
- Erting, C. J., C. Prezioso, and M. O. Hynes. 1994. The Interactional Context of Deaf Mother-Infant Communication. In *From Gesture to Language in Hearing and Deaf Children*, ed. V. Volterra and C. J. Erting, 97–106. Berlin: Springer.
- Erting, C. J., C. Thumann-Prezioso, and B. Benedict. 2000. Bilingualism in a Deaf Family: Fingerspelling in Early Childhood. In *The Deaf Child in the*

- Family and at School: Essays in Honor of Kathryn P. Meadow-Orlans*, ed. P. E. Spencer, C. J. Erting, and M. Marschark, 41–54. Mahwah, NJ: Erlbaum.
- Erting, L. 2001. Booksharing the Deaf Way: An Ethnographic Study in a Bilingual Preschool for Deaf Children. *Dissertation Abstracts International*, UMI no. 3035993.
- , and J. Pfau. 1997. *Becoming Bilingual: Facilitating English Literacy Development Using ASL in Preschool*. Sharing Ideas series. Washington, DC: Gallaudet University Pre-College National Mission Programs.
- Fisch, S., and R. Truglio, eds. 2001. *“G” Is for Growing: Thirty Years of Research on Children and Sesame Street*. Mahwah, NJ: Erlbaum.
- Gale, E., and B. Schick. 2009. Symbol-Infused Joint Attention and Language Use in Mothers with Deaf and Hearing Toddlers. *American Annals of the Deaf* 153(5): 484–503.
- Golos, D. 2010a. How to Choose a Quality Preschool for Deaf Children. *Endeavor*, February, 2010
- Golos, D. 2010b. Deaf Children’s Engagement in Educational Video in American Sign Language. *American Annals of the Deaf* 155(5): 360–68. doi: 10.1353/aad.2010.0014.
- . 2010c. Literacy Behaviors of Deaf Preschoolers during Video Viewing. *Sign Language Studies* 11(1): 76–99. doi: 10.1353/sls.2010.0001.
- , and A. Moses. 2011a. Representation of Deaf Characters in Children’s Picture Books. *American Annals of the Deaf* 156(3): 270–82. doi: 10.1353/aad.2011.0025.
- . 2011b. Teacher Mediation during Video Viewing. *Sign Language Studies* 16: 98–118. doi: 10.1353/sls.2011.0016.
- . 2013. Developing Preschool Deaf Children’s Language and Literacy Learning from an Educational Media Series. *American Annals of the Deaf* 158(4), 411–25.
- Hart, B., and T. Risley. 1995. *Meaningful Differences in the Everyday Experiences of Young American Children*. Baltimore: Brookes.
- Hoffmeister, R. J. 2000. A Piece of the Puzzle: ASL and Reading Comprehension in Deaf Children. In *Language Acquisition by Eye*, ed. C. Chamberlain, J. Morford, and R. Mayberry, 143–60. Mahwah, NJ: Erlbaum.
- Holcomb, T. 1997. Development of Deaf Bicultural Identity. *American Annals of the Deaf* 142(2): 89–93.
- Kuntze, M. 1998. Literacy and Deaf Children: The Language Question. *Topics in Language Disorders* 4: 1–15. doi:10.1097/00011363-199818040-00003.
- . 2004. Literacy and Deaf Children: The Relationship between ASL and Written English. PhD diss., Stanford University.
- . 2008. Turning Literacy Inside Out. In *Open Your Eyes: Deaf Studies Talking*, ed. H. B. Dirksen, 146–57. Minneapolis: University of Minnesota Press.

- Lane, H., R. Hoffmeister, and B. Bahan. 1996. *A Journey into the Deaf World*. San Diego: DawnSignPress.
- Lee, J. H. 2008. The Educational Impact of *Sisimpur*. Results of an Experimental Study of Children's Learning. Paper presented at the annual meeting of the International Communication Association, San Francisco, CA, October 23. [http://www.allacademic.com/meta/p170554\\_index.html](http://www.allacademic.com/meta/p170554_index.html).
- Linebarger, D. 2009. *Evaluation of the Between the Lions Mississippi Literacy Initiative, 2007–2008*. Accessed October 4, 2013 [http://pbskids.org/lions/parentsteachers/pdf/Linebarger\\_2009.pdf](http://pbskids.org/lions/parentsteachers/pdf/Linebarger_2009.pdf).
- Loeterman, M., P. V. Paul, and S. Donahue. 2002. Reading and Deaf Children. *Reading Online* 5(6) (February). Accessed July 28, 2007. [http://www.readingonline.org/articles/art\\_index.asp?HREF=loeterman/index.html](http://www.readingonline.org/articles/art_index.asp?HREF=loeterman/index.html).
- Luckner, J. L. 2008. Reading Comprehension Research Survey. *American Annals of the Deaf* 153(1): 6–36. doi: 10.1353/aad.0.0006.
- Luke, A., and J. Elkins. 2000. Re/mediating Adolescent Literacies. *Journal of Adolescent and Adult Literacy* 43: 396–98.
- Maestas y Moores, J. 1980. Early Linguistic Environment: Interactions of Deaf Parents with Their Infants. *Sign Language Studies* 26: 1–13.
- Mather, S. 1987. Eye Gaze and Communication in a Deaf Classroom. *Sign Language Studies* 54: 11–30.
- . 1989. Visually Oriented Teaching Strategies with Deaf Preschool Children. In *The Sociolinguistics of the Deaf Community*, ed. C. Lucas, 165–87. New York: Academic Press.
- Matthews, M., and M. Cobb. 2005. Broadening the Interpretive Lens: Considering Individual Development along with Socio-Cultural Views of Learning to Understand Young Children's Interactions during Socially Mediated Literacy Events. *Journal of Literacy Research* 37(3): 325–64. doi:10.1207/s15548430jlr3703\_3.
- Maxwell, M. 1984. A Deaf Child's Natural Development of Literacy. *Sign Language Studies* 44: 191–224.
- . 1988. The Alphabetic Principle of Fingerspelling. *Sign Language Studies* 61: 377–404.
- Mayberry, R. I. 2007. When Timing Is Everything: Age of First Language Acquisition Effects on Second-Language Learning. *Applied Psycholinguistics* 28: 537–49. doi: 10.1017/S0142716407070294.
- , A. A. del Guidice, and A. M. Lieberman. 2011. Reading Achievement in Relation to Phonological Coding and Awareness in Deaf Readers: A Meta-Analysis. *Journal of Deaf Studies and Deaf Education* 16(2): 164–88. doi:10.1093/deafed/enq049.
- Mayer, C., and G. Wells. 1996. Can the Linguistic Interdependence Theory Support a Bilingual-Bicultural Model of Literacy Education for Deaf Students? *Journal of Deaf Studies and Deaf Education* 1(2): 93–107.

- McQuarrie, L., and R. Parrila. 2009. Phonological Representations in Deaf Children: Rethinking the “Functional Equivalence” Hypothesis. *Journal of Deaf Studies and Deaf Education* 14(2): 137–54. doi:10.1093/deafed/enno25.
- Miller, P., and D. Clark. 2011. Phonemic Awareness Is Not Necessary to Become a Skilled Deaf Reader. *Journal of Developmental and Physical Disabilities* 23(5): 459–76. doi: 10.1007/s10882-011-9246-0.
- Morford, J. P., and R. I. Mayberry. 2000. A Reexamination of “Early Exposure” and Its Implication for Language Acquisition by Eye. In *Language Acquisition by Eye*, ed. C. Chamberlain, J. P. Morford, and R. I. Mayberry, 111–30. Hillsdale, NJ: Erlbaum.
- Musselman, C. 2000. How Do Children Who Can’t Hear Learn to Read an Alphabetic Script? A Review of the Literature on Reading and Deafness. *Journal of Deaf Studies and Deaf Education* 5: 9–31. doi: 10.1093/deafed/5.1.9.
- New London Group. 1996. A Pedagogy of Multiliteracies: Designing Social Futures. *Harvard Educational Review* 66(1): 60–92.
- Ormel, E. A., M. A. R. Gijzel, D. Hermans, A. M. T. Bosman, H. Knoors, and L. Verhoeven. 2010. Semantic Categorization: A Comparison between Deaf and Hearing Children. *Journal of Communication Disorders* 43: 347–60. doi:10.1016/j.jcomdis.2010.03.001.
- Padden, C. 1991. The Acquisition of Fingerspelling by Deaf Children. In *Theoretical Issues in Sign Language Research*, ed. P. Siple and S. Fischer. Vol. 2, *Psychology*, 191–210. Chicago: University of Chicago Press.
- , and B. Le Master. 1985. An Alphabet on Hand: The Acquisition of Fingerspelling in Deaf Children. *Sign Language Studies* 47: 161–72.
- Padden, C., and C. Ramsey. 1998. Reading Ability in Signing Deaf Children. *Topics in Language Disorders* 4: 30–46. doi:10.1097/00011363-199818040-00005.
- Parasnis, I. 1996. On Interpreting the Deaf Experience within the Context of Cultural and Linguistic Diversity. In *Cultural and Language Diversity and the Deaf Experience*, ed. I. Parasnis, 3–19. New York: Cambridge University Press.
- Perfetti, C., and R. Sandak. 2000. Reading Optimally Builds on Spoken Language: Implications for Deaf Readers. *Journal of Deaf Studies and Deaf Education* 5(1): 32–50. doi: 10.1093/deafed/5.1.32.
- Power, D., and G. Leigh. 1996. Principles and Practices of Literacy Development for Deaf Learners: A Historical Overview. *Journal of Deaf Studies and Deaf Education* 5(1): 3–8. doi: 10.1093/deafed/5.1.3.
- Prinz, P., and M. Strong. 1998. ASL Proficiency and English Literacy within a Bilingual Deaf Education Model of Instruction. *Topics in Language Disorders* 18(4): 47–60. doi:10.1097/00011363-199818040-00006.
- Ramsey, C. 2004. What Does Culture Have to Do with the Education of Students Who Are Deaf or Hard of Hearing? In *Literacy and Deaf People*:

- Cultural and Contextual Perspectives*, ed. B. Brueggemann, 47–58. Washington, DC: Gallaudet University Press.
- , and C. Padden. 1998. Natives and Newcomers: Gaining Access to Literacy in a Classroom for Deaf Children. *Anthropology and Education Quarterly* 29(1): 5–24. doi:10.1525/aeq.1998.29.1.5.
- Schirmer, B. R., and S. McGough. 2005. Teaching Reading to Children Who Are Deaf: Do the Conclusions of the National Reading Panel Apply? *Review of Educational Research* 75(1): 83–117. doi:10.3102/00346543075001083.
- Shocat, L. 2003. Our Neighborhood: Using Entertaining Children's Television to Promote Interethnic Understanding in Macedonia. *Conflict Resolution Quarterly* 21(1): 79–93. doi:10.1002/crq.50.
- Singer, J. Y., and S. A. Smith. 2003. The Potential of Multicultural Literature: Changing Understanding of Self and Others. *Multicultural Perspectives* 5(2): 17–23.
- Singleton, J. L., and P. Crume. 2010. Socializing Visual Engagement in Early Childhood Deaf Education. Poster presented at the International Congress on the Education of the Deaf. Vancouver, BC, Canada, July 18–22.
- Singleton, J. L., and D. Morgan. 2006. Natural Signed Language Acquisition within the Social Context of the Classroom. In *Advances in the Sign Language Development of Deaf Children*, ed. B. Schick, M. Marschark, and P. E. Spencer. Oxford: Oxford University Press.
- Smetana, L., D. Odelson, H. Burns, and D. Grisham. 2009. Using Graphic Novels in the High School Classroom: Engaging Deaf Students with a New Genre. *Journal of Adolescent and Adult Literacy* 53(3): 228–40. doi:10.1598/JAAL.53.3.4.
- Spencer, P., and M. Harris. 2006. Patterns and Effects of Language Input to Deaf Infants and Toddlers from Deaf and Hearing Mothers. In *Advances in the Sign Language Development of Deaf Children*, ed. B. Schick, M. Marschark, and P. E. Spencer, 71–101. Oxford: Oxford University Press.
- Stinson, M., and S. Foster. 2000. Socialization of Deaf Children and Youths in School. In *The Deaf Child in the Family and at School*, ed. P. Spencer, C. Erting, and M. Marschark, 151–74. Mahwah, NJ: Erlbaum.
- Street, B., ed. 1993. *Cross-Cultural Approaches to Literacy*. Cambridge: Cambridge University Press.
- Sulzby E., and W. Teale. 1991. Emergent Literacy. In *Handbook of Reading Research*, vol. 2, ed. R. Barr, M. L. Kamil, P. Mosenthal, and P. D. Pearson, 727–58. New York: Longman.
- Teale, W. H., and E. Sulzby. 1989. Emergent Literacy: New Perspectives on Young Children's Reading and Writing Development. In *Emerging Literacy: Young Children Learn to Read and Write*, ed. D. Strickland and L. Morrow, 1–15. Newark, DE: International Reading Association.

- Trelease, J. 2006. *The Read-Aloud Handbook*, 6th ed. New York: Penguin.
- Van Heertum, R., and J. Share. 2006. A New Direction for Multiple Literacy Education. *McGill Journal of Education* 41(3): 249–65.
- Veditz, G. 1912. *Proceedings of the Ninth Convention of the National Association of the Deaf and the Third World's Congress of the Deaf*. Philadelphia: Philocophus Press.
- Waxman, R. P., and P. E. Spencer. 1997. What Mothers Do to Support Infant Visual Attention: Sensitivities to Age and Hearing Status. *Journal of Deaf Studies and Deaf Education* 2: 104–14.
- Whitehurst, G. J., and C. J. Lonigan. 2001. Emergent Literacy: Development from Prereaders to Readers. In *Handbook of Early Literacy Research*, ed. S. B. Neuman and D. K. Dickinson, 11–29. New York: Guilford.
- Williams, C. 2004. Emergent Literacy of Deaf Children. *Journal of Deaf Studies and Deaf Education* 9(4): 352–65. doi:10.1093/deafed/enh045.