Using Pretend Play to Promote Foundations for Text Comprehension

Examples From a Program for Children Who Are Deaf and Hard of Hearing

Carol Westby and Deborah Wilson

This review article starts with an overview of changing education paradigms and the literature on cognitive and linguistic relationships in imaginative play related to comprehension of oral and written texts. Strategies for developing the cognitive and linguistic foundations for text comprehension through play are described. A review of current literature on children who are deaf or hard of hearing (DHH) indicates that many of them are at risk for deficits in imaginative play and text comprehension related to deficits in language, cognition, theory of mind, and social–emotional skills. The article concludes with description of a play-based educational program that was implemented with preschool children who are DHH. It is an example of how play-based interventions could be implemented with other populations facing language and literacy challenges. **Key words:** *comprehension*, *deaf*, *emergent literacy*, *hard of hearing*, *play*, *pretend*, *theory of mind*

EDUCATORS are under increasing stress to improve the literacy skills of all children. In efforts to meet the literacy goals mandated under the No Child Left Behind (NCLB) law passed in 2001, educators made a number of changes to classroom curricula. Between 1998 and 2010, kindergarten teachers devoted more time to advanced literacy and math content, teacher-directed instruction, and assessment; at the same time, they devoted substantially less time to art,

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music, science, and play activities (Bassok, Latham, & Rorem, 2016). Play disappeared from many kindergarten classrooms and was reduced in preschool programs, as children were introduced to more formal academic tasks at younger ages (Gray, 2011; Miller & Almon, 2009). The reading programs funded by NCLB emphasized skill development for decoding, with some attention to vocabulary. Although studies showed that such programs resulted in better decoding skills, they did not result in better oral language or reading comprehension, which were the desired ultimate outcomes (Gamse, Jacob, Horst, Boulay, & Unlu, 2008; Jackson et al., 2007).

Adoption of the Common Core State Standards (CCSS; National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010), or variations thereof, likely has furthered this shift to greater focus on academics by setting high academic standards in mathematics and

English language arts/literacy. Concerns are being raised regarding how teaching toward these standards is being implemented. Members of the Alliance for Childhood, for example, have suggested that kindergarten children are not developmentally ready for the CCSS reading standards in kindergarten (Carlsson-Paige, McLaughlin, & Almon, 2015).

Others have argued that the CCSS are not the problem; the standards leave room for developmentally appropriate instruction. The real problem, these commenters argue, is implementation of the standards (Pondiscio, 2015). Implementation becomes problematic when based on the belief that play and academics are polar extremes that are fundamentally incompatible. When guided by such beliefs, educators report feeling that they must choose whether to teach or let children play (Kochuk & Ratnayaka, 2007; Viadero, 2007). Other evidence shows, however, that it is possible to merge the two, teaching young children through play (Hirsh-Pasek, Golinkoff, Berk, & Singer, 2009).

The purpose of this article is to review the language, cognitive skills, and social–emotional skills essential for text comprehension, including theory of mind, and to describe the ways that play can foster development of these skills. We provide an example of a play-based preschool program for children who are deaf or hard of hearing (DHH) to demonstrate how play can be used to develop the foundational skills for text comprehension. The children in this exemplar program are DHH, but their related characteristics should not obscure the fact that program principles we discuss and illustrate are relevant to a range of children who have language delays or impairments for a variety of reasons.

LITERACY AND PLAY RELATIONSHIPS

Reading requirements

What must children learn if they are to read successfully? The simple view of reading (Hoover & Gough, 1990) maintains that literacy requires two related but separate capabil-ities: (1) decoding, which involves mapping between language and print, with reliance on phonological awareness and alphabet knowledge, and (2) broad knowledge of language. Although decoding skills are important for literacy, they are not sufficient for comprehension. Text comprehension requires that readers build a mental model or representation of the situation or the world (real or imaginary) described in texts that are heard, read, or watched (Perfetti, 1997). A mental model is a representation, or picture, seen in the mind when reading or thinking. At the microstructure level, such mental modeling requires understanding of the words and syntax of the text—and the words and syntax of written texts are more decontextualized; they are more abstract and complex than the words and syntax of oral texts. At the macrostructure level, mental modeling requires that persons recognize the organization and gist or theme of the text, and that they integrate this understanding with knowledge and experiences from long-term memory. The macrostructure level of the mental model requires understanding of the temporal and cause–effect relationships that exist among people, objects, and events, as well as a theory of mind.

Theory of mind (ToM) is multidimensional. It can be differentiated into cognitive and affective dimensions (Abu-Akel & Shamay-Tsoory, 2011). Cognitive ToM involves the ability to attribute mental states—beliefs, intents, desires, pretending, knowledge, and so forth—to oneself and others and to understand that others have mental states that are different from one's own. Affective ToM involves the ability to recognize emotions in oneself and others, to reflect on one's own emotions, to regulate one's emotions, and to empathize with others. Cognitive and affective ToM can be further differentiated into interpersonal and intrapersonal ToM (Lucariello, 2004). Interpersonal ToM is cognitive or affective and used to infer mental states and emotions of others. Intrapersonal ToM is cognitive or affective and used to reflect on one's own mental states and emotions.

Play contributions to language/literacy development

A number of researchers have investigated the relationship between play and literacy (Roskos, Christie, Widman, & Holding, 2010). Play, by itself, does not promote decoding skills, but play can facilitate the development of the mental modeling and language skills that provide the foundations for comprehension. Young children who engage in playful interactions learn what children in direct literacy instruction learn—but they also learn in areas not necessarily associated directly with literacy but still important for school success.

Play is associated with creativity, imagination, curiosity, resiliency, and the ability to take risks, work in groups, negotiate, resolve conflicts, and advocate for themselves (Hirsh-Pasek et al., 2009). Lack of play can be detrimental to language, cognitive, and social–emotional development (Gleave & Cole-Hamilton, 2012). Stipek, Feiler, Daniels, and Milburn (1995) reported that 4- to 6-year-old children in didactic classrooms, compared with children in more child- and play-centered classrooms, had higher scores on letter/reading achievement tests. On the contrary, in classrooms with didactic instruction but without play, children had lower expectations for their success on academic tasks, showed more dependency on adults for permission and approval, evidenced less pride in their accomplishments, and claimed to worry more about school.

Rich and thoughtful communicative interactions during the preschool years can prepare children for the language skills that are essential for reading (van Kleeck, 2006). Play supports children's language and communication skills in several ways. Guided interactions with adults in playful contexts increase children's vocabularies (Roskos, Tabors, & Lenhart, 2009). Talking more in pretend play at 3 years of age was associated positively with the size of the same children's vocabularies when they began kindergarten 2 years later (Dickinson & Moreton, 1991). Children who were exposed to vocabulary in playful contexts in addition in storybook reading also made greater gains in receptive and expressive vocabulary than children exposed to the vocabulary only in book reading (Han, Moore, Vukelich, & Buell, 2010). Pellegrini and Galda (1990) reported, further, that preschoolers who are engaged in make-believe play tend to use more complex mental-state verbs, such as *say, talk, tell, write*, and *explain*. Vocabulary has long been considered a predictor of reading comprehension (e.g., Beck, McKeown, & Kucan, 2013; Vellutino & Scanlon, 1987; Whitehurst & Lonigan, 2001). Kindergarten vocabulary predicts fourth-grade reading comprehension (Dickinson & Tabors, 2001).

Play also enhances children's narrative abilities (Eckler & Weininger, 1989; Ilgaz & Aksu-Koç, 2005; Nicolopoulou & Ilgaz, 2013; Stagnitti & Lewis, 2015). Familiarity with oral narrative organization, including temporal relations, cause–effect relations, and problem–attempt–resolution sequences, helps children in comprehension of similarly structured written texts (Cain, 2003). In fact, children's narrative abilities in kindergarten are linked to reading comprehension as late as seventh grade (Griffin, Hemphill, Camp, & Wolf, 2004; Tabors, Snow, & Dickinson, 2001).

COGNITIVE/LINGUISTIC DIMENSIONS IN PLAY AND LITERACY

Vocabulary and syntactic skills are essential for building the microstructure component of a mental model. At the macrostructure level, mental modeling requires ToM, decontextualization (creating the mental model), thematic understanding, and organization/integration. All of these dimensions are also found in play (Westby, 2000). Table 1 summarizes how these dimensions are manifest in both play and reading.

Cognitive/linguistic dimensions in play

Theory of mind (centration) in play

Theory of mind (or centration) involves the awareness of one's own thoughts and feelings (intrapersonal cognitive and affective ToM) and the thoughts and feelings of others (interpersonal cognitive and affective ToM). It also

Table 1. Parallel cognitive/linguistic dimensions in play and literacy

Dimension	Pretend Play	Reading Comprehension
Decentration/ Theory of mind	Pretend act requires awareness of one's mind; that what one is doing is not reality (intrapersonal ToM) Role play requires awareness of the thoughts and emotions of the characters one is playing and how to display them (interpersonal ToM)	Requires comprehension monitoring; knowing whether one is comprehending or not; knowing how to repair comprehension failure (intrapersonal ToM) Must recognize emotions of characters and make inferences about characters' thoughts and emotions (interpersonal ToM)
Decontextualization	Substitute one object for another Use language and/or gestures to set the scene and carry out the play without props	Object substitution in play correlates with vocabulary and narrative retelling Create mental models of the texts one hears or reads, i.e., form pictures in one's mind of the situation represented in the text
Thematic	Create play content and topics from familiar daily events to highly imaginative scenes Engage in rule-based play that follows social expectations	Recognize content, themes (messages) of text Make inferences about characters' behaviors based on social expectations of the theme
Organization/ Integration	Engage in play activities/themes that evolve in logical temporal/causal sequences Plan/organize multiple story lines for several children in cooperative role play	Logical play sequences correlate with narrative retelling Recognize text/discourse organization. Recognize temporal/causal relationships among characters and events; make inferences about those relationships

Note. ToM = theory of mind. Copyright 2017 by Carol Westby. Shared by permission of the author.

incorporates the concept that persons act on their own thoughts and feelings even if their belief or knowledge is false. The skills that are required for mental modeling for text comprehension are the same skills that children use in pretend play. Pretend play is an act of intrapersonal ToM in that children are aware that they are pretending and that what they are imagining in their minds is not actual reality (Leslie, 1987). Higher play levels or mature pretend play also promotes the use of intrapersonal ToM for self-regulation (Bodrova, Germeroth, & Leong, 2013). For example, when children take on a role in pretend play, they must monitor their behaviors and language to ensure that they are maintaining the role. As children develop ToM in play, they move from pretending on themselves (e.g., pretending to eat or drink), to acting on a doll (but the doll remaining a passive recipient), to talking to a doll, to talking for a doll, to taking on roles of others, and finally to taking on multiple roles of others. As they take on the thoughts and feelings of characters in role play, children develop increasing interpersonal ToM (Kavanaugh, 2011).

Decontextualization in play

Decontextualization refers to the substitution of one object for another or for the use of language and gestures to carry out the play (Sachet & Mottweiler, 2013). Initially, young children require physical props for their play. As their pretend play develops, it becomes

increasingly decontextualized, that is, it becomes less dependent on physical props. Eventually, the child creates the entire pretend scene through words and gestures. Children who exhibit greater decontextualization in their play by substituting objects (e.g., using a chair as a train) or taking on imaginative roles (e.g., *I'm an astronaut*) are creating mental models.

To convey their ideas to others in play, children use more explicit, decontextualized language involving more complex syntax with elaborated noun phrases, temporal and causal conjunctions, past tense and future aspect, and metacognitive verbs (Mottweiter & Taylor, 2014; Pellegrini, 1985). Preschool children's number of object substitutions in pretend play predicts their semantic skills and narrative retelling scores 3–5 years later (Stagnitti & Lewis, 2015). Through pretend play, children can develop concepts about semantic diversity. In pretend play, they learn to classify, compare, and reason—all semantic organization skills. They learn to recognize shared features and attributes of objects and use this knowledge in classifying toys. In play, children use objects flexibly—they can use the same object for different purposes or different objects for the same purpose. For example, the child may need something for the teddy bear to sleep on. This represents the superordinate category. Subordinate items are those the child chooses to use as the bear's bed. Such items could be a box, book, or piece of paper because all flat objects can symbolically represent a bed.

Theme in play

Theme refers to the content or topic of the play. Initially, the content or themes of children's play are the experiences children have on a daily basis (e.g., eating, sleeping). These are followed by themes of memorable events they have personally experienced less frequently (e.g., shopping or doctor play), then by themes about events they have not personally experienced themselves but have observed others to experience (in the real world or through videos and books such as firefighter or superhero), and finally, by

highly creative, novel themes that children create.

Thematic pretend play is rule-based in that children devise and follow social rules in pretend. As children engage in increasingly elaborate sociodramatic thematic play, they practice the expected social behaviors of characters with one another and with objects in the environment. In so doing, they develop knowledge of social roles and rules/expectations and become sensitive to external pressures to act in socially desirable ways. They are able to create more elaborate mental models and their understanding of relationships among objects, people, and environments expands (Berk, Mann, & Ogan, 2006).

Organization in play

Organization (or integration) refers to the temporal and causal sequences of events and experiences in play. Over the preschool years, children's play gradually becomes more organized. Initially, children play with individual objects, then begin to produce lengthier evolving sequencing of events, and finally plan a sequence of events before beginning the play. Children who exhibit more and longer logical sequences of pretend play actions in preschool exhibit better narrative retellings 3–5 years later (Stagnitti & Lewis, 2015). The thematic and organization dimension contributes to the development of autobiographical memory—the sense of self through time.

Cognitive/linguistic dimensions in text comprehension

Theory of mind in text comprehension

Theory of mind is essential for comprehension of narrative texts. Readers and listeners use interpersonal ToM to make the inferences necessary to understand and predict characters' intentions, goals, and behaviors (Filiatrault-Veilleux, Bouchard, Trudeau, & Desmarais, 2016; Ford & Milosky, 2008; Kyle & Cain, 2015). They must use intrapersonal ToM to monitor their comprehension of the text (Westby, 2014).

Decontextualization in text comprehension

Reading comprehension requires creation of mental models of the texts that one hears or reads (Boerma, Mol, & Jelle, 2016; Johnson-Glenberg, 2000; Perfetti, 1997) and the ability to use specific and complex decontextualized language (Scott, 2009). Inability to use decontextualized language has been associated with lack of academic success (Michaels & Collins, 1984; van Kleeck, 2015).

Theme in text comprehension

Theme is the content, topic, or message of the text. From first grade on, the curricular standards specify that students should be able to identify the message of stories. Recognizing text theme is considered an important aspect of comprehension (Duke & Pearson, 2008).

Organization in text comprehension

Text comprehension requires recognition of the text structure and the temporal and causal relationships among the people, objects, and events in the text. By third grade, curricular standards specify that students should be able to describe characters in a story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events. Awareness of text structure improves comprehension (Stevens, Van Meter, & Warcholak, 2010). Narrative text structure is driven by characters' actions in stories.

Summary of interrelationships

Pretend play provides children with a way to show their mental representation of the world and a way for them to learn about objects, events, and relationships in the world (Lifter & Bloom, 1998). It is this understanding of the temporal and cause–effect relationships in the world that children must bring to the task of mental modeling of texts. Furthermore, pretend play is a manifestation of ToM that requires children to distinguish between what happens in the world and what occurs in the mind. Children must be able to attend to and interpret the intentions of one another as they play. This requires them to observe affect and use language and social ex-periences to interpret the significance of that affect (Garfield, Peterson, & Perry, 2001).

Despite the potential value of symbolic play in early childhood education, the current emphasis on early literacy skills has put the educational and therapeutic use of play under siege. A number of researchers and early childhood specialists, however, are calling for the return of play in the curriculum. In *A Mandate for Playful Learning in the Preschool* (Hirsh-Pasek et al., 2009), the authors present the scientific evidence in support of three points: (1) children need both unstructured free play and playful learning under the guidance of adults to best prepare them for entrance into formal school; (2) academic development and social development are so intertwined that the academic learning must not trump attention to social development; and (3) learning and play are not incompatible—thematic and factual content can be learned through play more effectively than through didactic teaching.

LITERACY AND PLAY IN CHILDREN WITH SPECIAL NEEDS

All children likely would benefit from play-based education to build foundational cognitive, linguistic, and social–emotional skills for text comprehension (Gray, 2013), but children with language development challenges may be most in need of such an approach. Children with autism typically have cognitive, language, and ToM deficits that affect their discourse/text comprehension when reading, even when they have excellent reading decoding skills (Randi, Newman, & Grigorenko, 2010). Numerous studies have shown that children and adolescents with specific or primary language impairments exhibit deficits in pretend play (Rescorla & Goossens, 1992), ToM (Vissers & Koolen, 2016), and in literacy decoding and comprehension (Norbury & Bishop, 2002).

Children and adolescents who are DHH also exhibit deficits in all these areas. Historically, persons who are DHH typically have exhibited low literacy (Lederberg, Schick, & Spencer, 2013) and delays in pretend play (Blum, Fields, Scharfman, & Silber, 1994;

Brown, Prescott, Rickards, & Paterson, 1997; Brown, Rickards, & Bortoli, 2001; Spencer, 1996) and ToM (Schick, de Villiers, de Villiers, & Hoffmeister, 2007)[1]. In the current era, early identification, cochlear implants (CIs), bone-anchored hearing aids, digital hearing aids, personal-worn FM amplification systems, and classroom amplification systems have given the majority of children with hearing loss access to sound. Although improved sound access does not ensure that a child will develop spoken language abilities within normal limits, a number of students, particularly those with CIs, do develop highly intelligible speech and enter general education elementary classrooms with some vocabulary and structural language skills in the average range (Duchesne, Sutton, & Bergeron, 2009; Yoshinaga-Itano, 2015).

Yet, despite the markedly improved speech outcomes of children who are DHH, recent studies indicate that children who are DHH continue to exhibit delays in pretend play (Quittner, Cejas, Wang, Niparko, & Barker, 2016), ToM (Westby & Wilson, 2016), and literacy (Harris, Teriektsi, & Kyle, 2017). In this section, we provide a brief review of literacy, ToM, and play in children who are DHH before describing a program for promoting their interactions among children who are DHH.

Literacy in students who are DHH

Although many studies have documented the benefits of CIs for language comprehension and production, evidence about the impact on literacy (Harris, 2016) and ToM (Morgan, 2015) has been less consistent. Some research has indicated that early reading scores of some children with CIs are not significantly different from those of hearing children (Lyxell et al., 2011); however, other recent studies have shown that, although the reading levels of children who are DHH are better than in the past, they are still be-

low reading levels of hearing children (Harris et al., 2017). Sarant, Harris, and Bennet (2015) reported that 67% of the 5- to 8-year-old students with CIs in their study received reading scores within the average range (although their mean scores were below those of hearing children). These early achievements, however, are not maintained in all students with CIs as they grow older. Geers and Hayes (2011) reported that only 36% of their high school group with CIs performed within the average range in literacy assessments.

Understandably, students with severe to profound hearing losses typically have difficulty accessing the phonological code of English, and without fluent access to the code, reading comprehension is compromised (Kelly & Baarac-Cikoja, 2007; Kyle & Harris, 2011). Difficulty in mastering the code, however, cannot account for all the text comprehension difficulties exhibited by deaf students. Students who are DHH who have adequate word recognition skills still exhibit difficulty with comprehension (Kyle & Cain, 2015). Their difficultly making inferences about text explains some of the comprehension problems. When watching narrative videos, elementary school children who were DHH conveyed the factual content of the stories as well as hearing children, but they gave less detailed and less accurate responses to questions requiring inferences (Jones et al., 2016). Kyle and Cain (2015) reported that students who were DHH could make inferences, but they were significantly poorer at doing so than hearing students with similar word-recognition skills.

The ability of students who are DHH to make text inferences has been associated with ToM and understanding temporal/causal relationships. Performance of students who are DHH on ToM tasks has been correlated with their reading comprehension (Holmer, Heimann, & Rudner, 2016). Comprehension at both the local (sentence) and global (discourse) levels relies on the reader placing events into the correct temporal and causal sequence and understanding causal links between events. These processes are guided

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[1]All studies cited after these included students who used cochlear implants or hearing aids unless otherwise stated.

not only by knowledge of story structure but also by processing cohesive markers that signal these relations (e.g., *before/after*, *because/so*; Sullivan & Oakhill, 2015). Although some research suggests that DHH readers can use temporal and causal information when producing stories (e.g., Arfe & Boscolo, 2006), other findings suggest that they have difficulty in this domain (e.g., Eden, 2008). Some research indicates that DHH readers are significantly worse than their hearing peers at processing connectives even when matched on standardized measures of reading comprehension (Sullivan, Oakhill, Arfe, & Boureux, 2014).

Pragmatics and ToM in children and adolescents who are DHH

Pragmatic skills in children and adolescents who are DHH may lag behind vocabulary and syntactic skills (Toe, Rinaldi, Caselli, Paatsch, & Church, 2016; Yoshinaga-Itano, 2015). Children who are DHH exhibit more difficulties in pragmatic skills in conversations and social situations than hearing children, even when they are matched on vocabulary and syntactic skills. Deficits in ToM likely account for some of these pragmatic and social cognitive difficulties. As with literacy, persons who are DHH historically have exhibited delays and deficits in ToM.

Even with early identification and improvements in auditory access, many students who are DHH do not perform like hearing children on all types of ToM tasks, including measures of cognitive and affective ToM and intrapersonal and interpersonal ToM (Westby & Wilson, 2016). That is, evidence suggests that children who are DHH approach ToM tasks differently from hearing children, both when they give the correct response and when they give the incorrect response (Courtin, Melot, & Corroyer, 2008). For example, on a false belief location task, children are presented with two dolls (Maxi, a boy doll, and a mother doll), a chocolate bar, and two boxes. Maxi puts the chocolate in box A and leaves; while he is gone, the mother doll moves the chocolate to box B. Then Maxi comes back. The chil-

dren are asked where Maxi will look for the chocolate and to justify their response. When hearing children answer correctly, they are more likely to report what Maxi is thinking ("He thinks it's in that box"). When children who are DHH answer correctly, they are more likely to focus on Maxi's behavior ("He put it there before he left the room"). When the children who are DHH answer incorrectly, they are more likely than hearing children to make no reference to Maxi, focusing instead on the reality of where the candy is ("The candy's in this box") based on their own knowledge. This is consistent with other research that has linked these children's performance on ToM tasks to their imaginative cognition (pretend) and spontaneous narrative talk (Peterson & Slaughter, 2006).

In the past, deficits in ToM in persons who were DHH were explained on the basis of language delays and reduced access to social interactions with caregivers related to limited auditory access, which indeed are factors of ToM (deVilliers, 2005). Yet ToM deficits exist even on affective ToM tasks, such as matching emotion pictures (Rieffe, 2012) or showing empathy (Netten et al., 2015), that do not require language. Marschark and Hauser (2008) claim that children who are DHH are not hearing children who cannot hear; they process visual and auditory stimuli differently than hearing children. Even when children gain excellent access to sound by a variety of devices, they do not have normal hearing. In noisy environments or when interacting with several persons at a time, they are likely to miss many cues that are important for interpreting the thoughts and feelings of others; they are likely to miss feedback directed to them. They must exert an effort to listen, particularly in noisy environments or when interacting with several people at a time. Stress and fatigue arising from increased listening effort can result in a reduction of the capacity to process the multiple environmental cues essential for effective social interactions. As a consequence, children who are DHH experience reduced incidental learning—they are likely to miss feedback directed to them, and

they are likely to miss many cues that are important for interpreting the thoughts and feelings of others (Morgan, 2015).

Play in children who are DHH

Studies done before the availability of CIs reported that children who were DHH were slower in symbolic play development, whether they were acquiring spoken or signed language (Blum, Fields, Scharfman, & Silber, 1994; Brown et al., 1999; Brown et al., 2001; Spencer, 1996). Young children with hearing loss exhibited delays in all dimensions of play (Brown et al., 2001). Compared with hearing children, they exhibited far less decontextualization, rarely making object substitutions or inventing imaginary objects. With respect to organization, many of their pretend play behaviors were single pretend actions, whereas more of the pretend actions of the hearing children were sequenced and planned. With respect to ToM (termed *decentration* in the study), the DHH children acted on others almost exclusively, whereas the hearing children were more likely to produce pretend play actions through taking on the role of another. Only one study has been done with children 1.5–3 years of age with CIs (Quittner et al., 2016). Compared with hearing children, children with CIs exhibited less symbolic play.

USING PLAY TO PROMOTE UNDERPINNINGS FOR LITERACY

In this section, we offer an illustration of how to use play to promote language development and the underpinnings of literacy and higher level of comprehension. The example comes from a program for children who are DHH, but the principles have implications for other populations. The program was implemented in the New Mexico School for the Deaf (NMSD) as part of a dual-language (American Sign Language and English), play-based program. It was aimed at developing the language, cognitive, and social–emotional skills essential for social and academic success. The primary goal of the play-based program in the preschool environment is to create an accessible and stimulating language and play environment that provides entry into the world of ideas and thinking through meaningful social, communicative interactions. In this example, the program was designed to support the relational engagement of children who were DHH with their peers, family, and community.

The play-based program described here was inspired by a Reggio Emilia philosophy that views children as social, competent, intellectual, curious, and inquiring (Edwards, Gandi, & Forman, 1998). In a Reggio program, parents and children along with a "pedagogista" (mentor or support person) are involved in the coconstruction of the curriculum and environment. The aim of this approach is teaching children how to use symbolic languages (e.g., pretend play/drama, painting, sculpting) in everyday life. Sustained and rich authentic dialogue and discourse occur with all members of the school community through interdisciplinary teaming, community meetings, parent groups, and family events.

The project-based learning, borrowed from the Reggio Emilia early education philosophy, provides an orientation for the relational approach to literacy learning by providing a framework of shared ideas, shared memories, and shared and compared feelings, with a visual documentation of the language, play, and interactions that occur daily. The preschool nurtures a multilingual, accessible, respectful, and fun place to gather, develop friendships, and learn for children who are DHH. Through playful, shared experiences in the community and classroom, children are helped to develop the shared referencing skills that foster the development of ToM, understanding of temporal/causal relationships, and the ability to use contextualized and decontextualized language to discuss events, feelings, and ideas.

Children's play skills at the preschool are evaluated when they enter the program using the Westby Symbolic Play Scale (Westby, 2000). This is done in concert with in-depth language sampling analysis to construct play areas, play groups, and ideas for thematic or project development. Each child has a

language profile for both American Sign Language (ASL) and English. Classroom, therapy groups, and play centers are established to stimulate, mediate, and scaffold progression to the next levels of social interactions and language use through play and discourse by referring to these individual profiles. Thus, the Westby Symbolic Play Scale functions both as an assessment tool and an intervention guide for developing children's language and dimensions of play. Table 2 shows an abbreviated version of the original symbolic play scale.

Within the preschool program, play provides an opportunity to develop and use semantic memory (memory for words and concepts), procedural memory (scriptal memory for how activities are to be done), and episodic autobiographical (memory that links the emotional experience of the event with the what, when, and how of the event). Episodic autobiographical memory enables individuals to have memory for their subjective experiences throughout time and to perceive the present moment as both a continuation of their past and a prelude to their future (Tulving, 1993). This type of memory makes it possible for individuals to have conscious recollection of personal happenings and events from their personal past and mental projection of anticipated events into their future. Episodic autobiographical memory enables individuals to make predictions—and hence to make inferences.

Episodic autobiographical memory and ToM are interdependent. As children develop awareness of the relationship between their own feelings and experiences, they also begin to conceptualize that others might have feelings about experiences. The play-based preschool program uses project-based storyboards with digital camera documentation of events to elicit memory of the events and to stimulate conversation about past, present, and future.

Foundations for pretend play

To engage in pretend play, children must develop the interactional patterns that un-

derlie ToM. They must develop awareness of their own emotionality and the emotionality of others. This can be done by adults engaging children in enjoyable, playful interactions, in which adults promote a heightened anticipation and excitement (Gutstein, 2000). For example, Mary, the speech–language pathologist, is outside with a group of boys who find a bug on the ground. In an excited voice and with animated signing, Mary proclaims "bug." She notices that Zach pulls back from the group and shakes his arms as though upset with or fearful of the bug. Mary shares Zach's emotion by imitating his behaviors more intensely and screaming/signing, "OOOH, SCARED, BUG!"

The goal of emotion sharing is to lead children to reference the emotions of others, which involves borrowing the perspective of another person, using others' reactions as a reference point to resolve uncertainty, determining the emotional meaning of an unfamiliar person or object, making sure that your actions meet the approval of your partner, and determining your behavior's effect on others. This represents the emergence of interpersonal affective ToM, which is the foundation for social–emotional development. For children who are DHH, this early referencing is impacted by desynchrony of the language modality. That is, children who receive information about the world through visual language need visual information from their partners to engage in joint reference. A child who is not receiving this input is missing critical elements for interpreting messages. Hearing parents with newly identified children who are DHH are learning ways to transform auditory messages into more visual codes the child can follow. Research indicates that deaf children of hearing parents do not spontaneously follow the line-of-regard of others and reference behaviors (Scott, Russell, Gray, Hosie, & Hunter, 1999). Children cannot play with others if they do not reference the behaviors of others.

Children and their partners must coordinate or coregulate their referencing. That is, they must continually reference one another

Table 2. Brief Symbolic Play Scale

Ages	Theory of Mind/Decentration	Decontextualization/Integration	Episodic Autobiographical Memory	
			Content Themes	**Organization**
17–19 months	Pretends play on self	Realistic props	Events personally experienced that happen daily (e.g., eating, sleeping)	Single activity; use of single toy
19–22 months	Pretends on doll (doll passive recipient)		Pretends at activities of caregivers	Combines two toys or performs actions on two people
2 years	Talks to doll			Several actions on a theme (doll in tub, wash, dry)
2½ years			Events personally experienced that happen periodically (associated with emotion), e.g, grocery shopping, doctor play	
3–3½ years	Gives voice to dolls or puppets	Low representation toys/miniature toys; object substitutions	Events child has seen or read about but not personally experienced (e.g., firefighter)	Short sequences of temporally related activities; events evolve
4 years	Takes on roles of characters	Language used to set the scene		Planned events with cause–effect sequences
5–6 years	Gives characters multiple roles (mother, wife, doctor)		Highly imaginative themes	Multiple planned sequences

while engaged in an ongoing activity. For example, if playing ball, the child must check to see whether the partner is ready to catch the ball. In the play-based preschool, staff consciously facilitate peer awareness of emotion and activity. Many games are introduced to promote working together to enhance children's awareness of others' responses and movements. The occupational therapist is involved in team planning of each classroom and works with children in small groups to support self- and coregulation skills. In activities throughout the day, the program staff assist children in referencing and coordinating their referencing with others.

Promoting play dimensions for literacy

Theory of mind

If children are to develop higher levels of ToM in play, they must converse with persons who use words referring to mental processes. Consequently, staff make frequent use of words that refer not only to emotions (*happy, scared, angry, frustrated*) but also to mental processes (*imagine, remember, forget, ideas, thoughts*). If children are to talk for a doll or take on the role of another, they must be aware of how others feel, that others may feel differently than they do, and of how their own behaviors influence the emotions of others. Staff learn how to remain alert to situations where they can model these ideas and help children recognize the need to attend to the feelings of others.

Adults frequently model reflection of others and ask children to make certain they know what another is thinking. For example, John and Isaac are playing with a collection of large boxes. Isaac crawls into a large box. John closes the box over Isaac and then places a tool kit on top of the box. Linda, the teacher, says to John, "Ask him if that's OK. Let's check." Linda opens the box and says to Issac, "Is it OK? Do you like that? If you don't like that, tell John." Later, John crawls in a box. Isaac indicates to his teacher that he wants to put an empty box on top of the box that John is in. Linda says, "Well, tell him your

idea." She then explains Isaac's idea to John as Isaac watches, "We're gonna put the box on top and then it's gonna go boom." Isaac announces to John, "I told her to do that."

The ability to reflect on the feelings of oneself and others is critical for narrative comprehension. The distinction between self and others is seen in children's abilities to carry on multiple discourse roles in play (e.g., the roles of characters, stage manager, and narrator). Children may smoothly switch their roles during play, ranging from outside the play frame to within it. They may take the role of a character ("I'm cooking macaroni and cheese for dinner"), act as a stage manager for the props ("There's not enough fire hose; Can you get some rope?"), and speak as the author of the play story ("Now the mother squirrel decided to have a birthday party for her little boy"). Wolf and Hicks (1989) noted that these three types of discourse are encountered in reading a story: One reads the words uttered by the characters, description of the thought and actions in the story, and perhaps the narrator's reflection about the story or comments to the reader. For example, in *The Doghouse* (Thomas, 2008), a story about a mouse, duck, cow, and pig who lose their ball, the story begins with the narrator saying, "Oh no! The ball went into the doghouse." The narrator then takes on a stage-managing role, addressing the reader, "Who will get it out?" One then reads the spoken discourse of the mouse, "Cow will. Cow is big. Cow is brave. Cow is strong." Wolf and Hicks suggested that the ability to use these multiple strands of discourse in play is related to understanding these strands in literature.

Promoting decontextualization

As hearing children develop, their play becomes increasingly decontextualized, that is, they talk about what cannot be seen or heard. Children who are DHH typically use less decontextualization in their play than hearing children (Brown, Prescott, Rickards, & Paterson, 1997). Hearing children past 3 years of age are likely to make nonliteral object utterances (e.g., saying, "That's your medicine,"

while referring to white, plastic containers) and talk about knowledge beyond the daily experience ("We're gonna go to Santa Fe"). In contrast, children who are DHH are more likely to draw attention to literal objects ("That's my truck") and to describe what they are doing on the objects in the play ("I'm feeding the dog"). When pretend play first emerges, children need fairly realistic props to engage in pretending. Gradually, they are able to use less representative props, then creatively substitute objects (e.g., a box becomes a roast turkey), and eventually they use language to set the entire scene. Limited language makes it difficult for children who are DHH to move up in this hierarchy of imaginative play. Staff must consciously be aware of using language to talk about other than the obvious.

Staff of the play-based preschool intentionally move children from highly contextualized activities to decontextualized play activities. For example, the class goes to a pizza restaurant where the children can make their own pizzas. The teacher takes digital photographs of the experience, and, when back at school, the children sequence the photographs on storyboards and talk about the experience. The teacher writes their retellings of the experience under the pictures. Then in play, the children pretend to make pizza. Using beany baby animals as pizza dough, they pretend to roll and knead the dough (the beany babies). They sprinkle pretend cheese on the pizzas, put the "pizzas" on a plate, and then the plates on a chair that the children announce is the oven. The teacher asks the children how long the pizza should be in the oven. One child looks at her wrist as though she has a watch (which she does not) and says, "three minutes." When the children remove the pizza from the oven, the teacher reminds the children that the pizza is hot, saying, "Oh, hot! hot!" throwing the pizza up to keep from burning her fingers. This activity is accompanied by the reading, retelling, and discussion of the stories, *Pete's Pizza* (Steig, 1998) and *The Little Red Hen Makes a Pizza* (Sturges, 2002).

As the children participate in increasingly decontextualized activities, they use more descriptive, elaborative, and higher order language. In the actual activity of making pizza, they map descriptive, functional language onto their observations and activities. When reminiscing about the experience while looking at photographs, they generate language to describe not only the past activity but also more abstract language to evaluate the experience. When pretending to make pizza, the children draw on their mental model of the experience; they generate language to explain to their peers what they are doing to enable the play to continue. Finally, when listening to and discussing the stories, they use language that is distanced from their own experiences. They compare and contrast their experiences with those in the stories, they describe and explain events in the stories, and they observe how print can be used to capture stories for later reminiscing.

Promoting thematic content and organization

The Reggio Emilia philosophy advocates a thematic instructional approach. The curriculum is organized around themes or rich and engaging topics that cross all learning domains—math, science, art, social skills, fine and gross motor skills, and receptive and expressive language development. In play, children both display and further their understanding of events in the world. Initially, this knowledge is of a scriptal or procedural nature. Scriptal knowledge provides knowledge of what is coming, how to behave, and what to say. If children are to reproduce themes in play, they must first represent the experiences or themes in memory.

As children integrate emotional information into situations, their play makes greater use of episodic autobiographical memory, which enables them to develop more flexible themes. As the thematic content of play moves from highly familiar scripts to creative topics, the play becomes more organized. Play begins with reproduction of an isolated activity, to a few related activities, to an evolving sequence

of activities or an event, then to planned sequences in play. The development of increasing organization or integration in play appears to reflect not only increasing understanding of the spatial, temporal, and cause–effect relationships within the physical and social world, but also increasing metacognitive skills that enable children to monitor their own behavior. Deficits in the organizational dimension of play may represent lack of understanding of the interrelationships within the physical and social world or deficits in the child's metacognitive abilities. Language is critical for the development of metacognitive self-control and self-monitoring behaviors, for it is largely through language that individuals plan their behavior (Berk, Mann, & Ogan, 2006). Metacognitive abilities are essential for monitoring reading comprehension (Westby, 2014).

The thematic and organization dimensions of play are dependent on memory. Memory is highly influenced by talk about past events. Talk about events facilitates children's verbal encoding and reporting by providing labels for and descriptions of the experience. Furthermore, adult–child talk may help children understand an event by highlighting its causal and temporal structure and by guiding the child's attention to its salient aspects. Opportunities to discuss experience afterward are particularly critical in promoting children's memory for and comprehension of events (Fivush, 2014; McGuigan & Salmon, 2004).

Staff at the play-based preschool provide many interesting field trips and hands-on activities as a way to promote language development. In addition, they make plans for the field trip with children, talk with children during the experience, do follow-up activities after the event, and reminisce about the experience. Reminiscing is especially critical for the development of autobiographical memory. As the teachers reminisce with the children, they elaborate on the experience and support the children's developing autonomy by encouraging them to contribute to the reminiscing and gradually take on more of the structure of the reminiscence.

Some events at the preschool are repeated in some form each year (e.g., a trip to a pumpkin patch in October). In preparing for the experience, teachers and the speech–language pathologist review with the children photographs that were taken the year before, providing labels for the objects and events depicted, and predicting what they are likely to do in the experience. Multiple ways are used to encourage talk after an event. As described previously, storyboards are used to promote discussion and build episodic autobiographical memory by engaging the students in posting photographs of the trip on a large storyboard in the room. Children may comment to one another or adults about what they were doing in the pictures, or they may pull a picture off of the board to show to someone or match it to something similar they see in a book.

Children may also refer to storyboards when reenacting the experience in pretend play. For example, they may set up chairs, pretending that they are seats on a bus. One child pretends to be the driver taking the class to the pumpkin patch; the other children are his passengers. Once at the pumpkin patch, using a toy farm set, the children attach wagons to tractors, put small people figures in the wagon, drive the tractor around the field (a plastic mat marked with paths), and have people pick up small pumpkins (balls, marbles, or playdoh pumpkins). As they do this, the teacher and speech–language pathologist provide labels and descriptions of the activities and emotional responses to the activities. They remind children of aspects of their experience, such as finding a mouse in a rotten pumpkin. While doing so, the adult shows the affect and labels the feelings ("The pumpkin was smashed. It was yucky. OOO, we were surprised. We found a dead mouse in the pumpkin. Poor mouse"). Children are encouraged to talk with one another and to talk for the toy figures as they play. These multiple opportunities to talk about an event facilitate the development of language and episodic memory—and thus provide children with further skills to use in their play and communication.

Thematic play should not be limited to real events that children have personally experienced. For children at the play-based preschool, daily life experience coupled with rich language may be rare because most families are just beginning to learn to sign; therefore, access to complex language predominantly occurs in the school environment. In the later preschool years, hearing children play at a variety of imaginative themes involving pirates, castles, princes, dinosaurs, superheroes, and so forth. Such content is more difficult for deaf children to access. Stories and informational books can provide valuable background for play, but limited language experiences make it difficult for deaf children to comprehend abstract information.

To fill these gaps, staff of the play-based preschool provide developmentally appropriate and thoughtfully crafted experiences to help children appreciate the information in books. For example, when learning about princes/princesses and castles, staff, parents, and children went to a lumber store, purchased boards, and built a "castle" with a drawbridge on the playground. They dug a moat around the castle. The Society for Creative Anachronism, an organization that reenacts medieval activities, came to the school with their costumes and "weapons" and demonstrated medieval games. The teachers supported the children playing in their castle.

Play plan example

Table 3 shows a lesson plan for play, based on the play dimensions of the Westby Symbolic Play Scale (2000). This example plan was developed for 4-year-old David and two of his playmates. Currently, David is able to pretend at activities he has personally experienced, such as grocery shopping and doctor play. He has recently begun to attempt to play at activities he has seen in the community or on television but in which he has not been personally involved. He is particularly intrigued with playing firefighter and is quick to claim the fire jacket and helmet. The NMSD educational team decides to develop a firefighter theme for the children.

To provide the children with the necessary background to play firefighter, the class visits the local fire station and is able to explore the fire engine. The teacher also invites a fire fighter to the classroom. The local fire department regularly sends firefighters to talk with preschool children because they have found that young children are sometimes frightened when they see firefighters in all their gear (including their gas masks) and run from them. The firefighter brings his gear and puts on each item in front of them, warning them before he puts on his gas mask that he will look different. He talks with the children about when to call 911 and he has them practice calling 911 on a toy phone. Then he has the children pretend they are in a fire so that they can practice "stop, drop and roll." The children are permitted to try on the fire gear. In this way, the children have highly contextualized experience with real materials.

The teacher takes photos and videos of these experiences so that she and the children can reminisce about them. The teacher shares books about firefighters with the children to provide them with more information about what firefighters do so that the children have more ideas of activities to include in their play. The reminiscing and book reading are more decontextualized experiences, but a number of realistic props characterize the actual pretend play on a continuum between a contextualized and decontextualized experience. Taking on the roles of firefighters and people caught in the fire requires that the children engage in role taking that involves some understanding of what another persons' thoughts and feelings might be in such a situation. During the play, the teacher models the roles of a firefighter, 911 operator/dispatcher, and persons finding a fire, using relevant vocabulary to talk about objects, actions, and emotions. She participates in the play, using self-talk (talking about what she is doing) and parallel talk (talking about what the children are doing).

Table 3. Example play lesson plan

Theory of Mind	Decontextualization	Theme	Organization	Language
Roles • Firefighters • 911 operator/dispatcher • People to rescue Emotions • Surprised • Scared/frightened/ terrified • Worried • Relieved • Glad/happy • Grateful	Read: *Let's Meet a Firefighter; A Day in the Life of a Firefighter; Curious George and the Firefighters.* Visit a fire station or have a firefighter visit school Props (begin with life-size props rather than small toy figures) • Chairs or very large box for fire engine • Firefighter hats, jackets, rubber boots • Toy or cardboard hatchet • Phones • Buckets • Hoses/tubes for hoses • Ladder • Colored tissue paper for flames and smoke	Kitchen in home catches fire. Must call firefighters, who come, rescue people and pets, and put out house fire Note: if someone is hurt, can add a doctor theme to the play. A doctor theme is developmentally earlier, so children should have had experience playing doctor/patient	Sequence of activities • Find fire • Call 911 • Operator/dispatcher answers; asks for information • Firefighters come to house • Connect and use hose • Save people and animals • Put out fire • Clean up	Vocabulary • Firefighter • Dispatcher • Rescue • Hydrant • Engine • Hose • Hatchet • Spray Discourse ideas: *Firefighter* • Where's the hydrant? • I need the ladder. • We will rescue them. • The house is burning so I'm spraying cold water on it. • Bring the hose then get me the ladder. *People* • I see the fire engine now. • There is smoke coming out of the window. • Please save my little dog. • When I smelled smoke, I called 911.

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CONCLUSION

Many curricula are being promoted to improve emergent literacy learning. The majority of these programs fail to acknowledge that literacy is language and language is not simply a set of skills. Language is learned through authentic, communicative interactions that arise out of persons' motivations to share feelings and perceptions of experiences. The Reggio Emilia play-based curriculum provides an example of how the principles of play-based learning can be applied with preschool-aged children. In this example, the framework is used to help children who are DHH develop the range of language, social, and cognitive skills necessary for the

mental modeling essential for reading comprehension. Such a program is well suited to helping this group of children gain access to authentic language learning experiences, but it has the potential to benefit all children, including children with language delays or disorders.

Traditional learning focuses on learning of facts. Play encourages the weaving of facts together in new and imaginative ways. It promotes the social and cognitive skills in children that they will need if they are to be productive adults. Play prepares children for the work of the 21st century, which requires a workforce with creative minds who can work effectively with others, generating and sharing ideas (Pink, 2005).

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