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A Socio-cognitive Approach to How Children with Deafblindness Understand Symbols

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Children with congenital deafblindness are a population of learners who may need intervention in order to develop symbolic understanding. They experience a combination of vision and hearing impairments that can affect how they make sense of the world, develop relationships, and understand symbols. In this article, the author reviewed a socio-cognitive framework of symbolic understanding and suggested it as one way to organise the extant research on symbolic development of children with deafblindness. A socio-cognitive framework describes the development of children’s individual skills and how their abilities are supported by active participation in social and cultural experiences. Symbolic understanding is not an isolated cognitive skill, but rather a complex socio-cognitive developmental process that is intimately supported by meaningful interactions. A socio-cognitive framework may help teachers to support the symbolic understanding of school-aged children with deafblindness. Teachers of children with deafblindness can use the framework to understand their students’ individual socio-cognitive abilities and their social interactions. In other words, a socio-cognitive framework may support teachers of children with deafblindness to understand the abilities and environments that are critical to the development of symbolic understanding.

Keywords: child development; children with disabilities; cognitive theory; communication; congenital deafblindness; deafblind; socio-intentionality; symbolic understanding

Introduction

Symbolic understanding is a major milestone in human development and is the foundation to almost every subsequent learning achievement (Deacon, 1997). Its critical and intimate connection to language and cognitive development allows for children to become more active members of their society and can lead them to a more realised human experience (DeLoache, 2002). Perhaps this is why symbolic understanding has captured the attention of researchers and is regarded as an important and timeless area of inquiry in a variety of academic fields (DeLoache, 2002; Tomasello, 2002).

In this article, the theoretical frameworks of Nelson (1996) and Tomasello (1999) are used to inform practice that supports the symbolic understanding of children with congenital deafblindness. Nelson’s and Tomasello’s perspectives of symbolic understanding take into account children’s individual experiences (e.g., their cognitive development) together with their social experiences (e.g., their social context and environment; Nelson & Shaw, 2002). They believe that children understand symbols and symbolic systems because they go through a socio-cognitive developmental process that blends these individual and social experiences.

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Children with congenital deafblindness are a unique and diverse group of learners. They are united in that they all experience a combination of vision and hearing impairment that affects how they understand the world and how they develop interpersonal relationships (Rødbroe & Janssen, 2006). As vision and hearing are the primary senses used to access information from a distance, any combined loss of vision and hearing can greatly affect a child’s symbolic understanding. In addition, children with deafblindness may have other impairments, such as motor or cognitive impairments, which further affect how they make meaning and establish the kind of relationships with others (McInnes, 1999) that lead to symbolic insight.

Further compounding the challenges faced by children with deafblindness is a dearth of research on how to support their symbolic understanding. This is especially so for research on children with deafblindness who have yet to develop symbolic insight (Park, 1997). The extant research has provided a clear description of the challenges faced by these learners (see Bruce, 2005a) and detailed specific interventions (see Chen 1999; Chen & Haney, 1995; Janssen, Riksen-Walraven, & van Dijk, 2003; MacFarland, 1995; Rowland & Schweigert, 2000) but there is much to be learned about the developmental process in which children with deafblindness come to understand symbols (Sevcik & Romski, 2005). In particular, research that considers the cultural and social contexts of children with deafblindness may help to strengthen interventions for school-aged children with deafblindness who have emerging symbolic insight.

Socially Shared Symbolic System

Nelson and her collaborators (Nelson, 1996; Nelson & Shaw, 2002) have stated that children’s active participation in social and cultural experiences supports the development of abilities that lead to their symbolic understanding. Nelson and Shaw (2002) referred to this developmental process as the socially shared symbolic system. Each word in this phrase (social, shared, symbolic, and system) describes a cultural system through which the child progresses as they develop symbolic understanding. Three of the cultural systems (social, shared, and symbolic) will be briefly discussed.

Social

The experiences that start children on the developmental pathway to symbolic understanding are situated in a social world (Nelson & Shaw, 2002). Everyday experiences, like feeding or getting ready to go outside, are important to children’s development because these events provide a cultural context that allows them to eventually make sense of what is happening around them. Children are keen observers of the environment and are especially attuned to social stimuli (Nelson & Shaw, 2002). Over time, they understand their role within the interactions (e.g., to open their mouth when being fed). These interactions may be taken as evidence that the children have internalised these social routines. Over time, the power within these routines slowly shifts from being completely adult driven to being adult and child driven.

When children have a sense of what is going on around them, they develop event knowledge, which is the understanding of the frequently occurring routines in their lives (Nelson, 1996). Event knowledge helps children to anticipate and actively participate in routines (Paavola, Kunnari, & Moilanen, 2005; Tamis-LeMonda, Bornstein, & Baumwell, 2001; Trevarthen, 2002). As children begin to anticipate and participate in
everyday activities, they become increasingly aware of the implicit and explicit signals they receive during social routines (Nelson, 1996). Such signals include words, gestures, movements, expressions, and tools used in these routines.

Shared

Children’s experiences and development become increasingly sophisticated when their social environment becomes a shared environment. Nelson and Shaw (2002) stated that a shared environment typically occurs after a child is six months of age. It is composed of interaction patterns where: “the child begins to take part in a new interaction pattern, sharing attention to objects with another by following the other’s gaze or point, responding to the other’s emotional reaction to an event, and imitating another’s object-directed actions” (pp. 30–31). In a shared environment, children move beyond merely anticipating and participating in reciprocal exchanges to truly sharing emotions, objects, and even words.

When children are able to make some sense of what is happening in the context of everyday events and routines, they are able to glean more from other people’s actions and interests (Trevarthen & Aitken, 2001). In particular, children are able to make sense of how words are used in conjunction with objects or a certain part of a routine (e.g., Mum says, “Up! Up!” when lifting up her child). Although the act of sharing words supports children’s understanding of interactions, this understanding is limited because the words are used to refer to something within its context, just as someone would do by pointing—which is not yet evidence of symbolic insight.

Symbol

Nelson and Shaw (2002) stated that symbolic understanding is established only when communication forms are used to stand for or represent things and relations that cannot be pointed to, such as other people’s intentions and one’s own intentions. Whereas children previously used communication forms to merely indicate, elicit, or anticipate action, now they have moved from the level of event to the level of the mind. Or, in other words, they understand their own intentions and the intentions of others within the context of the symbol use (Nelson & Shaw, 2002).

Although it is difficult to discern the exact moment when children understand symbols, research has shown that children understand symbols when they are able to use words to denote concepts (Nelson & Lucariello, 1985). For example, a child who asks for a favourite toy not found in the immediate environment by saying “Ducky!” understands that the word represents the concept of the toy in his or her mind, as well as in the mind of the adult. Nelson and Shaw (2002) stated that children acquire the ability to use symbols around 19 months of age, or approximately six months after producing their first words. At this time, children understand that a symbol denotes a concept because the symbol is shared in a social context. The mutual understanding of concepts is established from shared interactions where language or symbol use is modelled. As children are exposed to others using symbols and use symbols themselves, they begin to understand that adults have intentions to denote concepts or, in other words, they begin to understand why adults use symbols (Nelson & Shaw, 2002).

Intentions and Culture

Nelson and Shaw’s (2002) theoretical framework shares many similarities with the work of Tomasello (1999, 2001) and his work with collaborators (Tomasello, Carpenter, Call,
Behne, & Moll, 2005). In contrast to other contemporary theoretical models of human development that conceptualise language development as being a separate mechanism, Tomasello et al. (2005) posited that symbolic understanding is derived from basic social–cognitive skills that are socially and culturally situated. Similar to Nelson’s theory (1996), Tomasello (2002) stated that children’s symbolic understanding results from the development of children’s social and cognitive processes within a social and cultural context.

Tomasello (1999) stated that social–cognitive skills become the foundation for symbolic understanding because these skills create an opportunity to learn about the world from other people’s perspectives. Understanding symbols is not merely a reflective cognitive task, but rather involves engagement in social interactions that guide children to understand and interpret adult intentions.

A variety of characteristics found in the social environment facilitate the development of socio-cognitive skills and allow children to enter, “into the world of bi-directionally understood linguistic symbols or intersubjectivity” (Tomasello, 2001, p. 113). In other words, children’s fundamental social and cognitive abilities interact with their social environment and allow them to develop intentionality, or the understanding that other persons have intentions. Children’s understanding of intentions leads them into a new world of intersubjectivity, where they understand other people’s intentions in addition to the symbolic artefacts and social practices of their culture (Tomasello, 1999). Tomasello described three types of interaction that are needed to understand symbols: dyadic interactions, triadic interaction, and collaborative engagement.

**Dyadic Interactions**

At six months of age, children are able to interact dyadically with objects or people but are only able to coordinate their attention within interactions to one person or entity at a time. The foundation of children’s symbolic understanding is grounded in these dyadic interactions and is fostered through protoconversations (Tomasello et al., 2005). Protoconversations are the back and forth between the adult and child in the absence of formal communication conventions (Stern, 1985; Trevarthen, 1979). These social interactions have a clear turn-taking structure. Child and adult focus attention on each other in ways that involve looking, touching, and vocalising (Tomasello, 1999). For example, a father who makes funny faces and noises in response to his child’s babbles (or vice versa) is having a dyadic interaction and a protoconversation with his child.

Dyadic interactions lead to symbolic development because the adult and child are in direct engagement with each other. They are not just acting contingently but they are also, as Tomasello et al. (2005) noted, exchanging emotions in the context of interactions. The exchange of emotions is the “glue that holds the protoconversations together” (p. 681) and it becomes a special motivator that encourages interactions to develop from a simple give and take to a social act (Tomasello et al., 2005; Trevarthen, 1979). Both participants bond emotionally, learn about each other, and learn about what can happen when they interact (Trevarthen & Aitken, 2001).

Within dyadic interactions, children mimic behaviours, such as body movements or vocalisations, in the presence of matching stimuli presented by adults. Tomasello (1999) stated that children (even at very young ages) attempt to reproduce adult behaviours, which shows that they are socially attuned with other people. All in all, dyadic interactions encourage children to learn about themselves and their abilities, because they receive useful feedback that helps them to understand their own behaviours, goals, and
the outcomes of their actions (Stern, 1985). In addition, they direct their attention within their social environments to emulate or mimic behaviours within these dyads (Tomasello, 1999).

**Triadic Interactions**

As children develop socio-cognitive skills from dyadic interactions and protoconver- sations, another layer of complexity is added when an outside entity enters the interaction (Tomasello et al., 2005). Whether it is a toy or a person, the dyadic sharing interaction becomes triadic (i.e., child, adult, and external entity) because the child is able to attend to more than one person or entity at a time. This triadic interaction is often referred to as *joint attention* (referred to by Tomasello et al. as *joint perception*) and is widely studied in the field of developmental psychology.

Tomasello (1999) referred to the approximate age when triadic interactions occur as the nine-month revolution, because at 9–12 months of age children focus on an outside entity together with other people. The children’s ability to focus attention on adult and object creates a referential triangle that is truly triadic. Through social interactions, children begin to coordinate their attention with adults and external entities, and eventually they begin to understand the adults’ goal-directed attentions and intentions toward objects (Hay, 1979; Ross & Lollis, 1987; Tomasello et al., 2005).

For example, Carpenter, Nagell, Tomasello, Butterworth, and Moore (1998) found that several skills (referred to as joint attentional skills) emerged between nine and 12 months of age and were precursors to joint attention: the ability to perceive an entity with an adult, gaze following, point following, imitation of instrumental acts, imitation of arbitrary acts, reaction to social obstacles, use of imperative gestures, and use of declarative gestures. Tomasello (1999) stated that joint attentional skills emerge together in a somewhat synchronous manner because children are able to begin to understand other people as intentional agents (i.e., people who have goals and actively plan actions in order to pursue goals).

**Collaborative Engagement**

Collaborative engagement is the final type of engagement needed to develop shared intentionality. This is when children and adults begin to plan together. Children are able to use and understand symbols during collaborative interactions because they have an understanding of why adults use symbols (Carpenter et al., 1998). In a sense, children’s understanding of intentions has come full circle. As experiences build in complexity, and the cognitive and social skills of the children become more advanced, their understanding of others’ intentions develops to the point where they can help adults if needed. Children are able to understand that adults have complex intentions that include goals, attention, and decisions (Tomasello, 1999). Children’s understanding at this level is the essence of symbolic development because they understand from both sides of the interaction and are able to use symbols in a conventionally appropriate manner (Trevathan & Aitken, 2001).

Children who understand from both sides of an interaction do more than just imitate the adult behaviour. They engage in coordinated actions that can be taken as evidence that they have moved from merely following adults to directing, planning, and helping them (Ratner & Bruner, 1978; Tomasello et al., 2005). For example, they may crawl over to toys that their parents cannot easily reach, or direct adults to pick up certain toys for them (Ross & Lollis, 1987).
Tomasello (1999) stated that children’s understanding of intentions at this point in their development does not emerge suddenly or indicate that children have a comprehensive understanding of themselves. Instead, children’s understanding of intentions should be seen as the opening of a new reality that has exciting possibilities. As children understand why artefacts are used, and actively monitor, plan, and participate with other people, their symbolic understanding continues to deepen and develop.

A Socio-cognitive Approach to Symbolic Understanding of Children with Deafblindness

Given the emphasis of the socio-cognitive theories of Nelson (1996) and Tomasello (1999) on children’s development of cognitive and social skills that are manifested in a cultural environment, it is reasonable to state that children with deafblindness face challenges in their development of symbolic understanding. Their combination of vision and hearing impairment, often in addition to motor and/or cognitive impairments, affects how they perceive and understand the world (Miles & Riggio, 2000). In addition, they may have limited access to the kinds of cultural experiences and social interactions that make symbolic understanding possible. For example, children with deafblindness may not have access to information that supports event knowledge and dyadic interactions or they may not have access to the incidental sharing of objects and language used in triadic interactions. Moreover, these children may have self-stimulatory or socially isolating behaviours that impede interpersonal relationships which lead to understanding others’ intentions when using symbols (Janssen, Riksen-Walraven, & van Dijk, 2002, 2003, 2004; Luiselli, 1992).

In particular, the multiple barriers to symbolic insight faced by school-aged children with deafblindness warrant consideration. School-aged children with deafblindness may be taught by people who do not understand how to initiate social interactions with them or know how to acknowledge the unconventional communication attempts of their students in these interactions (Chen & Haney, 1995; McLetchie & MacFarland, 1995; Souriau, Rodbroe, & Janssen, 2009). In addition, school-aged children with deafblindness may have many different teachers who change from year to year (Giangreco, Edelman, Nelson, Young, & Keifer-O’Donnell, 1999), limiting the time and consistency needed to support their symbolic understanding. Lastly, school-aged children with deafblindness may be taught in learning environments that are designed for learners who have already developed symbolic understanding, and teachers may struggle to adapt and accommodate a curriculum to the needs of students with emerging symbolic insight.

The socio-cognitive frameworks from Nelson (1996; Nelson & Shaw, 2002) and Tomasello (1999, 2001; Tomasello et al., 2005) can be used to support and inform teachers of students with deafblindness. Accordingly, the extant research in the field of deafblindness has been organised using the following sub-topic areas described in the socio-cognitive frameworks: supporting social and dyadic interactions, supporting shared triadic interactions, and supporting symbolic interactions and collaborative engagement. The literature was chosen based on its relevance to the content in each of these areas.

Supporting Social and Dyadic Interactions

To synthesise the earliest stages of symbolic understanding, Nelson and Shaw (2002) stated that the first experiences which lead to symbolic understanding are everyday, frequently occurring routines that are situated in a social world. As children develop an understanding of events and begin to anticipate routines, they begin to develop event
knowledge, which is a basic understanding of what happens during routine events. Event knowledge allows children to anticipate and eventually become active participants in social interactions, in addition to exposing them to symbol use. Tomasello et al. (2005) stated that the process through which children understand symbols begins with dyadic social interactions and protoconversations. Protoconversations are adult–child exchanges where sounds, faces and/or movements are exchanged in turns. Adult and child are in direct engagement of each other, exchanging emotions and bonding in ways that create true social interactions (Tomasello et al., 2005).

For students with deafblindness to benefit from social and dyadic interactions, they need to have meaningful and sustained access to responsive teachers who help them to develop interpersonal relationships (Rødbroe & Souriau, 1999). Without social interaction there is no foundation for communication or learning. In addition, students with deafblindness, like all learners, need to feel secure before they can engage in interactions that support symbolic understanding. Engelman, Griffin, and Wheeler (1998) suggested that teachers use familiar classroom routines and consistent teacher behaviours to engage students with deafblindness. Teachers can support students’ event knowledge through implementing routines and consistent behaviours that promote feelings of security while at the same time encouraging mutual attention, responsiveness, and shared emotions. Teachers who support event knowledge may help students to anticipate what is happening in their environment, a critical understanding that leads to active participation.

Teachers may be able to build on the security and trust created by their students’ event knowledge by fostering protoconversations. Hart (2006) suggested that imitation plays a crucial role in facilitating protoconversations because: it attracts the students’ attention and lets them attract the attentions of others, it stimulates turn-taking between students and their teachers, it helps students to recognise their teachers (Nafstad & Rødbroe, 1999), and it lets students realise that their teachers are just like them. Therefore, teachers should consider how they can use imitation to help children with deafblindness reach their communication potential (Bruce, 2005b; Hart, 2006).

Wheeler and Griffin (1997) suggested that teachers use imitation based in touch or movement with students who are deafblind. In the absence of vision and hearing, imitating students’ movements or touch could encourage the development of dyadic exchanges. Using the curricular approach posited by van Dijk (1967), they suggested that teachers use coactive movement strategies (i.e., movements that occur jointly or reciprocally between the student and teacher). Teachers can engage students in coactive movement strategies through the use of: resonance or close physical contact that captures students’ attention and encourages imitation of movement, and the expanding of resonance to include the use of two or more movements or actions.

Teachers may find that engaging in successful protoconversations and using imitation strategies with students with deafblindness can take a great deal of time, energy, and consideration of their own behaviours (Chen & Haney, 1995). First, teachers can consider how they enter into dyadic interactions by using imitation acts that are perceptually salient to their students with deafblindness (Bruce, 2003; Hart, 2006). In addition, they may need to decrease their own reified communication practices (e.g., the use of verbal language) to give priority to the communication modes of their students. Or, they may need to adjust their communication responses so that they give clear and unambiguous responses, whether this is a movement, gesture, vocalisation, vibration, or airflow (Hart, 2006; Rødbroe & Souriau, 1999).

Janssen et al.’s (2002, 2003, 2004) and Bruce’s (2002) research found that when teachers reflect on their own practice it can help them to attune to their own behaviour
in ways that support students with deafblindness in social and dyadic interactions. Teachers who carefully considered their own abilities in these early interactions learned how to build trusting relationships with their students, elicit signals from their students, and keep their students’ interests and active engagement within social interactions. Thus, teachers who want to improve the social and dyadic interactions they have with students who are deafblind can benefit from consideration and reflection of their own knowledge, skills, and abilities of how to develop and sustain event knowledge and protoconversations in the classroom.

**Supporting Shared and Triadic Interactions**

As children develop their event knowledge and skills within protoconversations, Nelson and Shaw (2002) stated that they move from participating in simple exchanges to sharing emotions, objects, and even words. Sharing interactions that support children’s understandings of reciprocity may encourage them to imitate caregivers’ words and actions on objects. To establish triadic interactions, Tomasello et al. (2005) stated that joint attention or perception of adult and child on an external entity is needed. Through joint-attention activities, children are able to figure out or make sense of adults’ intentions and begin to share goals, actions, and perceptions. When children understand their caregivers’ intentions, they begin to genuinely understand the underlying goals of the actions of their caregivers.

Before students with deafblindness share goals, perceptions, and work with others in collaborative activities, they need to have shared attention (e.g., attention on a person and an external entity). Shared attention may be negotiated from the previously mentioned social and dyadic interactions. For example, teachers who engage in protoconversations with their students may also be able to encourage them to consider another entity, such as another object or another person. By adding another entity to the interaction and changing the engagement from dyadic to triadic, teachers can draw their students’ focus to a new topic or subject that can be explored further (Souriau et al., 2009).

Teachers can engage students with deafblindness in shared interactions by ensuring that the learning environment is perceptually accessible and meaningful to all (Miles, 1998). Teachers can create perceptually salient triadic interactions by using successful dyadic, social interactions as the foundation for their conversations. In addition, teachers can ensure meaningful interactions by using everyday routines that allow their students with deafblindness to use everyday objects in support of their development of shared engagement (Bruce, 2005b). For example, a favourite cup or toy can become the focus of a triadic interaction that occurs during snack time.

When students with deafblindness are aware of and curious about teachers and shared objects in their learning environment, these triadic exchanges can be deepened. For example, in MacFarland’s (1995) review of the curricular approach by van Dijk (1967) for students who are deafblind, she stated that teachers can enrich triadic interactions using representation reference strategies. These strategies include extended, repetitive exploration of objects within social routines or modelling symbol use within natural contexts. Teachers can engage their deafblind students in exploration and subsequent sharing of a new toy during playtime or an interesting piece of clothing during activities of daily living. Thus, teachers can use familiar objects in interesting and repetitive ways to encourage symbolic understanding.

Shared and triadic activities are fundamental to symbolic development because they create a catalogue of concepts and experiences that students with deafblindness can later
draw upon to refine their symbolic understanding. Teachers can consider how their students with deafblindness need specific learning environments and routines to support their symbolic understanding. Compared with other students, even those with severe disabilities, learners with deafblindness are given fewer cues to communicate and interact with others in their classrooms (Rowland, 1990). Consequently, teachers may need to create: “deliberate, regular and powerful opportunities for communication in the classroom … by providing opportunities that are so powerful that the student is almost guaranteed to respond” (Rowland, 1990, p. 271).

**Supporting Symbolic Interactions and Collaborative Engagement**

Nelson and Shaw (2002) stated that symbolic understanding is established when communication forms are used to stand for or represent things and relations that cannot be immediately referenced. Children who use symbols move from being at the level of the event to being at the level of the mind. They are not just mimicking or emulating the use of symbols, but rather they understand the intentions of others within the context of symbol use. Tomasello et al. (2005) referred to the stage where adult and child plan together and share each other’s intentions as collaborative engagement. In collaborative engagement, joint attentions are paired with joint intentions. This form of engagement gets all participants to use communication as a tool to plan and accomplish, which leads to the cultural act of using symbols.

Students with deafblindness may use symbols as a way to represent the understanding of another’s intentions when they have developed the necessary socio-cognitive abilities that unfold from previously mentioned social or dyadic interactions, and shared or triadic interactions. In other words, students with deafblindness who had access to teachers who provided them with meaningful opportunities to develop a basic understanding of their environment, people, objects, and concepts may be able to understand how symbols are used to refer to all of these entities. Students with deafblindness may begin to understand that symbols are a useful tool when they begin to understand how to use symbols in collaborative activities where intentions are shared.

There is very little research on how children with deafblindness come to understand the intentions of others and move from the level of the event to the level of the mind to use symbols. Hart’s (2010) study of how individuals with congenital deafblindness develop language is perhaps the most detailed account of how certain types of engagement or interactions lead to symbolic understanding. His video analysis of individuals with deafblindness and their non-deafblind communication partners clearly showed that complex symbol use developed from dyadic interactions and movements, gestures, and signs that were perceived and understood by both partners. Through interpersonal relationships, the partners created and sustained what Hart referred to as a community of communicative practice. By imitating and sharing movements, gestures and signs, these communities of communicative practice allowed for symbolic understanding, in the form of language, to emerge.

Hart’s (2010) research suggested that teachers may be able to support the symbolic development of their students with deafblindness by using routine, engaging, and motivating experiences as the foundation for introducing symbols. In order to develop symbolic or collaborative engagement, teachers can consider the ways they represent things that are not immediately accessible but very meaningful, motivating, and familiar to their students. Without having social interactions and shared relationships to build from, students may not understand teachers’ intent to represent using symbols. For example,
renowned deafblind educator, van Dijk (2002) began using objects of reference (i.e., an object as a symbol) as a way to reference past events that were enjoyable and memorable to his students with deafblindness. He represented the activity of hairdressing for a child in his class by attaching the nozzle of a hairdryer and a comb to a piece of cardboard. Then, he shared the nozzle with his student during the time that she liked to use the hairdryer. Over time and multiple exposures to the nozzle, the child came to understand that the nozzle could be used to represent the act of hairdrying, an event that she enjoyed greatly. So began the practice of using objects as symbolic representation to teach children with deafblindness.

Using van Dijk’s (2002) approach as a model, teachers can develop ways to reference and represent meaningful experiences by identifying social interactions or past experiences that are mutually understood. This is in contrast to using symbolic communication systems, such as tactile calendar systems, that are solely used as a means to deliver messages to the student (Hart, 2010; Rodbroe & Souriau, 1999). Perhaps symbol systems and interventions that are teacher-focused should be avoided, especially if these systems are not grounded in the co-construction of social and emotional experiences previously outlined in these socio-cognitive frameworks.

Chen (1999) and Chen and Haney (1995) suggested that teachers working with learners with deafblindness should carefully consider their cultural contexts, which includes their home environment. Teachers should ask the caregivers of their students to make a list of important concepts in their homes. For example, if a student enjoys slowly rocking while singing songs or playing with soft toys, then these activities can be brought into the class to encourage symbolic understanding. Teachers may be able to use consistent tactile signs or objects to represent these contingency games and model symbol use in the hopes that the child will emulate their symbolic behaviours (Namy & Waxman, 2005).

Bruce (2005b) and Pizzo and Bruce (2010) suggested that symbolic development of children with deafblindness may be supported through play. Within the context of play, teachers can encourage and model the use of objects, gestures, and other cues to develop symbolic understanding. It is believed that these kinds of socially situated and naturally occurring activities allow for symbol use and production to be infused. Teachers who scaffold students’ symbolic understanding may begin to believe in their students’ capacity to understand symbols and others’ intentions when their students emulate the use of symbols in these play-based learning environments (see Namy & Waxman, 2005).

**Conclusion**

The research of Nelson (1996; Nelson & Shaw, 2002) and Tomasello (1999, 2001; Tomasello et al., 2005) provides a useful framework for teachers who support the symbolic development of learners with deafblindness. Students with deafblindness, like all learners, make sense of experiences by using their social and cognitive abilities, building on their social history, and solving problems through coordinating actions in social environments. This sense-making process is closely tied to their interactions and engagement with others. Children’s symbolic understanding continues to deepen over many years and builds in complexity. Symbolic understanding becomes a bridge to other people’s minds and lets children understand what other people think in contrast to what they think. Through the use, comprehension, and production of symbols, children’s development of symbolic understanding deepens and leads to other important milestones, such as the development of higher-order thinking processes (Nelson et al., 2003).
Teachers play a crucial role in supporting the kinds of engagement that allow for symbolic understanding to occur. Symbolic understanding occurs within interactions that build in complexity. Teachers can scaffold these interactions to support their students’ social and cognitive skill development. From social and dyadic interactions, to shared and triadic interactions, and finally to symbolic and collaborative engagement, children with deafblindness should be given the opportunity to develop their symbolic understanding within meaningful and motivating environments. Teachers can examine their own knowledge, skills, and abilities to support their students’ symbolic understanding. In addition, teachers may need professional support to develop relationships with their students with deafblindness, as it takes time, energy, and commitment to develop the ability to understand others’ intentions.

Perhaps what is most important about a socio-cognitive approach to symbolic understanding is that emphasis is placed on the whole interaction. Symbolic understanding is not an isolated cognitive skill to be developed, but rather unfolds from social–cognitive development and meaningful social interactions. Students with deafblindness, like all learners, are apprentices in their social environments. Teachers are also apprentices because they may need to learn how to share behaviour, emotions, goals, perceptions, and intentions in unconventional ways. Hart (2010) stated that non-deafblind partners who want to support the kind of partnerships that lead to symbolic understanding must embrace a paradox of working in genuine and equal partnerships, but also taking the responsibility of making the first step toward that partnership. It is only through the reform of our own behaviours that children with congenital deafblindness will develop symbolic insight. In this sense, symbolic understanding truly is a gift from the larger community (Nelson et al., 2003).

Although it is suggested in this article that these socio-cognitive theoretical frameworks guide teachers in their practice to support learners with deafblindness, a limitation of this suggestion is that these frameworks do not provide any evidence of the efficacy of this approach. Further research is needed to ensure that these frameworks are efficacious to teachers and students with deafblindness. Teachers will need to find value in the frameworks and be able to use them to engage in research-based practice to support their learners. In addition, students with deafblindness should benefit from interventions and practices that are informed by these theories. Lastly, researchers could use the socio-cognitive frameworks presented to analyse a more exhaustive and comprehensive review of the literature on educating learners with deafblindness, in addition to analysing the efficacy of specific interventions that are grounded in these theoretical frameworks.

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Note
1. The term teachers is used in this section and throughout the rest of the article to refer to all adults who may support a deafblind child’s development and learning in educational settings, including but not limited to a special educator, teacher of the visually impaired, teacher of the
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