The Interface Between Theory of Mind and Language Impairment

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When most of us hear the term “theory of mind” we usually think about children with autism spectrum disorder since they have deficits in this area. But another group of children is receiving attention when it comes to research about theory of mind: children with specific language impairment (SLI).

To date, research has been inconclusive regarding the theory of mind abilities in children with SLI. While some studies show that children with SLI have poorer theory of mind abilities than typically developing children, other research shows no difference between these two groups of children. One problem with previous research is the small sample sizes from which conclusions were drawn (Nilsson & de López, 2016).

Terminology

Before going any further we need to clarify some terminology:

- “Theory of mind” refers to the ability to attribute mental states to oneself and others in order to explain behaviours
- The term “specific language impairment” is used by many researchers and clinicians to refer to marked language impairment in the absence of neurological or sensory dysfunction, and despite normal nonverbal intelligence
- Specific language impairment has been removed from the DSM-5 and replaced with “Language Disorder”. However, in order to be consistent with Nilsson & de López’s use of the term specific language impairment, I use the term below to most accurately describe their findings.

(Nilsson & de López, 2016)
Hoping to overcome this limitation and bring clarity to this debate, Nilsson & de López (2016) conducted a meta-analysis of studies comparing the theory of mind abilities in typically developing children and children with SLI.

**Meta-Analysis**

Nilsson & de López’s (2016) literature search revealed 17 relevant studies of children between the ages of 4 to 12 (for a total of 745 children). Studies included in the review met the following criteria:

- They included two comparison groups matched in terms of chronological age: typically developing children (total n = 416) and children with SLI (total n = 329)
- Children in the SLI groups had a diagnosis of specific language impairment

Nilsson & de López didn’t form any hypotheses at the beginning of their meta-analysis since past studies revealed inconsistent results. Besides looking at theory of mind abilities, the authors also analyzed whether age or gender moderated the differences between the two groups’ abilities.

**Results of the Meta-Analysis**

Nilsson & de López found that:

- Children with SLI demonstrated significantly lower theory of mind performance than age-matched typically developing children
- Neither age nor gender moderated the studies’ effect sizes

**What do these results mean?**

- Language ability is connected to theory of mind ability

These results lend support to an association between language and theory of mind. Because the primary difficulties in SLI are with language skills, it is likely that impaired language is the most probable explanation for the theory of mind challenges seen in children with SLI (Nilsson & de López, 2016). What cannot be gleaned from these results is exactly how language difficulties influence the development of theory of mind.

- Does a common denominator underlie both language and theory of mind?

Nilsson & de López propose that the language-theory of mind connection may not be so straightforward, and perhaps a common mechanism underlies the development of both skills, such as executive functioning or etiological mechanisms (genetic or environmental factors). However, results from the meta-analysis could not clarify this connection.

- Performance factors probably didn’t contribute to the children’s performance
One might wonder whether the children's language impairment interfered with their ability to perform on tests of theory of mind. However, the linguistic demands of such testing likely didn't interfere with the results because:

- the theory of mind tests included simple verbal instructions that were usually supported by visual aids
- pre-tests ensured children's memory and comprehension abilities were sufficient for testing
- both verbal and less verbal tasks were used to assess theory of mind, and no consistent pattern was found in children with SLI across these tasks

Nilsson & de López explain that these factors indicate that children with SLI likely have true theory of mind challenges that can't be explained by the verbal demands required for theory of mind testing.

**Is theory of mind delayed or disordered in SLI?**

Two factors point toward delayed development of theory of mind in children with SLI:

- Children with SLI exhibit eye gaze patterns similar to typically developing children during social situations (whereas children with autism spectrum disorder pay less attention to faces and their gaze tends to shift to the periphery of social situations)
- Some studies show that children with SLI demonstrate theory of mind abilities that are comparable to younger language-matched typically developing children

(Nilsson & de López, 2016)

However, this doesn’t mean that children with SLI eventually catch up in their theory of mind abilities. Rather, some evidence reveals theory of mind impairments may endure into adolescence and adulthood in individuals with SLI. Perhaps this plays a role in the poorer social outcomes observed in children with SLI (Nilsson & de López, 2016).

**Promoting theory of mind in children with language impairment**

Given the results of their meta-analysis, Nilsson & de López suggest that,

“...interventions aiming to improve the ToM [theory of mind] abilities of children with SLI may be contemplated as an adjunct to conventional language programs” (p. 150)

But here's the problem...our traditional toolbox for treating language impairment doesn't come with a “theory of mind” manual! We need to think out of the box in order to promote this skillset while continuing to address the many other goals we have when working with children with language impairment.

While more research is needed in this area, researchers have proposed several language skills that might be related to theory of mind development, and these can give us clues about where to start in intervention (Nilsson & de López, 2016):
• **mental state words** - children need to understand words that describe mental states, such as want, **believe**, and **think**. Modeling these types of words helps children tune-in to their own feelings and others’ perspectives. Caregivers can model mental state words by putting their child’s feelings, wants, and perspectives into words, and explaining why people do the things they do. A good place to start is with the mental state words “want” and “like” as these develop earliest. Emphasizing peoples’ wants and likes can happen during an everyday activity like mealtime, where the child’s likes are compared with other family members’ likes (e.g. “You **like** chocolate cake but Daddy and I **like** vanilla”).

• **complement clauses** - certain syntactical abilities are needed to express peoples’ perspectives. One example is the ability to use complement clauses, like “I think that Peter is sleeping” (the clause “that Peter is sleeping” complements the verb “think”). Modeling sentences that begin with words about thinking (e.g. think, know, forget, remember, understand, etc.) builds understanding of tuning-in grammar (e.g. “I think that it’s going to rain”, “He knows that you are upset”, or “She forgot about your birthday”).

• **conversational exchanges** – when children engage in everyday conversation, they learn that different people have different points of view. When caregivers have conversations with their child, they can express ideas about their opinions, what they are thinking, and why they are doing the things they are doing.

Research has not yet prioritized which of these language skills has the most impact on the development of theory of mind (Nilsson & de López, 2016).

Some children with language impairment may not be ready for work on the above skills, so looking at some of the early precursors of theory of mind can help with goal selection, including:

• **Engagement and joint attention** – face-to-face interactions during which children are emotionally engaged help them notice others and what they are doing. This ability is needed to build perspective taking. Engagement and joint attention can be promoted by encouraging caregivers to follow their child’s lead and engage in enjoyable activities that spark their child’s interests. Talking about what the child is doing and what the adult is doing and thinking during these moments can help build perspective taking.

• **Pretend play** – when a child takes on a pretend role, he needs to think about and re-enact another person’s perspective and behaviour. Early pretend play with toys and role play can therefore help children tune in to other people’s points of view.

There are many other ideas about helping children tune in to others in **TalkAbility: People skills for verbal children on the autism spectrum – A guide for parents**

**In conclusion**

While we may not immediately think about working on theory of mind when we plan intervention for children with language impairment on our caseloads, the research is becoming increasingly clear about this area of difficulty for
these children. We need to ensure that they have the skills they need in order to develop all aspects of their communication abilities, including theory of mind.

For more information about the development of theory of mind, have a look at our article Thinking about Thinking: How young children develop theory of mind.

We also have articles on our website geared towards parents and other caregivers:

- The Truth About Kids’ Lies - describes how the ability to lie is related to theory of mind
- ‘Tuning-in’ to others: How young children develop theory of mind - a summary of theory of mind development and tips for promoting tuning in

References


About The Hanen Centre

Founded in 1975, The Hanen Centre is a Canadian not-for-profit charitable organization with a global reach. Its mission is to provide parents, caregivers, early childhood educators and speech-language pathologists with the knowledge and training they need to help young children develop the best possible language, social and literacy skills. This includes children who have or are at risk for language delays, those with developmental challenges such as autism, and those who are developing typically.

For more information, please visit www.hanen.org.

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