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Occupational Therapy's Role in Early Language Development of Babies and Young Children

Aimee E. Ketchum, OTD, OTR/L and Marie-Christine Potvin, PhD OTR/L
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Introduction

Occupational therapy practitioners (OTPs) working with children under the age of three, typically address the occupations of play, sleep, and simple activities of daily living as well as a host of performance sub-skills such as those falling under motor skills on the *Occupational Therapy Practice Framework* (American Occupational Therapy Association [AOTA], 2014). However, critical aspects of early childhood development are often not addressed by OTPs, social participation and social interactions. Babies are primed for, and need to engage in social participation and social interaction from the day they are born (Harrison, Roane & Weaver, 2014). Early on, the receptive component of social interaction takes the form of listening to words spoken to them, tone of voice and body language. This is referred to as early language exposure.

Early language exposure is critical for babies and young children's brain development (Suskind, 2015; Kuhl & Rivera-Gaxiola, 2008). In fact, it has been identified as the strongest predictor of future literacy and math skills (Suskind, 2015; Kuhl & Rivera-Gaxiola, 2008). Babies and young children from lower socio-economic backgrounds are exposed to less early language than children from more affluent families, placing them at a disadvantage in terms of academic and social skills before they even

start kindergarten (Hart & Risley, 1995). Studies have shown that the children who experience a delay in development because they are being raised in an environment that is less language-rich, never catch up (Hart & Risley, 1995; Lee & Burkham, 2002).

Occupational therapy practitioners in their interactions with babies, young children and their families, can be change-agents who promote rich language environments as a foundation to social interactions, social participation and academic successes. OTPs may be the sole provider working with a family or may reinforce with families the plan of care developed by speech-language pathologists (SLP) or early intervention teachers. The first step for OTPs is deeper knowledge of the importance of early language exposure, social interaction and participation development in young children and approaches that promotes rich language environments.

The Word Gap

More than 20 years ago, Hart and Risley (1995) found that children raised in families whose parents were professional heard 487 words spoken per hour, while children from families who were welfare recipients heard only 178 words spoken per hour. This large disparity in language exposure has been called 'the word gap' (Textbox 1. Did you Know). Later studies found that the more parents talked to their children, the faster

their child’s vocabulary grew, the higher their measured intellectual quotient was and the better their social skills was at age three (Hart & Risley, 2003; Greenwood, Carta, Walker, Watson-Thompson, Gilkerson, Larson, & Shnitz, 2017). More recently, the importance of conversational turns, the back and forth interactions between children and parents, was identified as the strongest determining factor of academic achievement (Romeo, Leonard, Robinson, West, Mackey, Rowe, & Gabrieli, 2018; Greenwood et al., 2007). It is clear from the current research that the language environment in which children are raised is critical for their life long success (Pickston, Golbart, Marshall, Rees, & Roulstone, 2009; Suskind, Leffel,

Hernandez, Sapolich, Suskind, Kirkham, Meehan, 2013).

Effective Intervention to Support Social Interaction and Participation Development

Parent-mediated intervention are a group of research-based interventions found to be effective to support parents in promoting their child’s development at any age and in many settings (Roberts & Kaiser, 2011). Parent-mediated interventions include strategies such as parent training, routine-based intervention and coaching. These are all designed to help parents carry out strategies within their daily life to improve skills of their own children (Pickard, Wainer, Bailey & Ingersoll, 2016).

Did You Know?

The United States government has recognized the importance of addressing the word gap through programs such as Early Head Start and the Bridging the Word Gap Challenge (Welshman, 2010). In the Bridging the Word Gap Challenge, the government, encouraged the development of technology-based innovations to bridge the word gap. These innovations can be used by OTs to promote rich language environment when working with young children. One solution, the *Word Gap App* was created by a pediatric occupational therapist. This app is rooted in families’ daily routines and promotes change in parent interactions with their children through functional activities.

Technology-Based Innovative Solutions to Bridge the Word Gap

Hableme Bebe	Starling	Word Gap App
<ul style="list-style-type: none"> • Free app • Promotes Spanish and English languages • Provides 20 daily routines to engage in language nutrition • Features educational modules • Allows users to track how often they talk to babies • Created by NICU Nurse-practitioners and Linguist 	<ul style="list-style-type: none"> • Wearable recording device costing \$149.99 • Tracks words in all languages • Allows for tracking of words spoken by a parent and baby • Has corresponding app that transfers data from recorder • Offers tips and reading strategies • Created by engineers 	<ul style="list-style-type: none"> • Free app • Promotes English and Spanish languages • Promotes interactions through educational videos and songs. • Provides parents with simple stress management strategies • Allows users to track use through point system • Created by pediatric OT

Parent training can be formal using a curriculum or informal done in the moment when working with a family. Routine-based intervention focuses on embedding strategies in family daily routines in the natural environment (Jennings, Hanline & Woods, 2012). More recently, coaching-based interventions have been found effective in early intervention and beyond (Rush & Shelden, 2011). These interventions focus on helping parents identify strategies that they can apply with their children to achieve their goals (Potvin, Prelock & Savard, 2018).

Newborn Social Interaction and the Roles of Occupational Therapy

Newborn infants interact socially in their own way (Harrison & Roane, 2004). Pre-term babies, before they can even open their eyes, will communicate their needs through exhibiting involuntary stress signals to overstimulation (Harrison & Roane, 2004). Newborns show an innate interest in human voices, especially their mother's, over other sounds that have the same acoustic properties (Aamodt & Wang, 2011). Newborns demonstrate awareness to words spoken by turning their head toward the sound of familiar voices and attempting to focus their eyes (Harrison & Roane, 2004). In fact, as early as three-weeks-old newborns understand the pause and flow of conversations (Aamodt & Wang, 2011). Thus, rich language exposure should begin from the day a child is born as parents are babies' first teachers.

Parents may need to be provided information about the language exposure needs of their newborns and how to read infant communication signals. Occupational therapists can also demonstrate reading, talking and singing to newborns, which will

model for parents some of the ways that they can implement these crucial language exposure habits. Similarly, OTs can provide education to parents related to teaching their baby the flow of a conversation. To increase the carry-over of information, OTs can help embed strategies in a family's daily routine or employ a coaching approach. Finally, OTs can work with the hospital staff to keep a fresh supply of books in the NICU for parents to read to their babies.

Toddler's Social Interaction and the Roles of Occupational Therapy

Toddler's are language sponges, both verbally and non-verbally. The language environment in which they grow is critical to their long-term outcome (Suskind, 2015). Toddler's innate need to be exposed to a rich vocabulary increases as their social participation expands. This rich vocabulary will also promote the development of a toddler's problem solving skills and their ability to express themselves (Wasik & Jacobi-Vessels, 2016). Children learn vocabulary when parents scaffold language by, for example, adding additional words to the child's sentences (Wasik & Jacobi-Vessels, 2016). Language is also an integral part of play (Margetts, 2005). Children derive greater benefit from play when parents guide verbally their child's play, offering affirmations and narrating the child's actions (Margetts, 2005; Wasik & Jacobi-Vessels, 2016). These same strategies can be embedded in many other family routines, such as bath and meal time.

OTPs working with toddlers and their families have many parent-mediated approaches at their disposal to promote an environment that continues to be language-rich. Providing informal training such as giving information to parents about how to

incorporate early language concepts into functional activity may be beneficial. For example, during meal time, parents may be taught to encourage a child to ask for more Cheerios while they are also working on self-feeding. An OTP can also model for parents how to embed language during daily routines and occupations of childhood such as play. Whether providing training or modeling, an OT should scaffold the information provided to parents. Too much information may be overwhelming. Too little, may be detrimental to the child. With other family, a coaching approach may be more effective. Then, the OT would help a family problem solve what strategies to employ in their own life to maximize the language development of their own child. In this approach, the OT role is to foster the self-discovery by parents of strategies that will work for them within their own lives.

Conclusion

Young children, from birth, are primed for, and in need of, social interaction and participation. Young children gain and refine these skills with help from their parents (Kuhl, 2004). Some families struggle with creating the rich language environment that is so critical to their children's future success (Hart & Risley, 2003). As the most powerful predictor of future skills, research tells us that early language development is so critically important that it transcends disciplines. Addressing language may be in the SLP care plan, but it is the child's best interest to for all team members to support this early building block for future skills. OTPs need to be cognizant of the importance of early language exposure during interaction with parents of young children. They have the ability to train, model and coach parents in

strategies to incorporate language into daily routines.

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