Building Preverbal Communication & Engagement

Triadic Gaze Intervention for Young Children With Disabilities and Their Families

by

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About the Authors

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Dr. Olswang's 40-year tenure at the University of Washington included a professorial appointment in the Department of Speech and Hearing Science and a research affiliate appointment at the Center on Human Development and Disability. She received her academic degrees at Northwestern University, the University of Illinois, and the University of Washington. Dr. Olswang's honors include the University of Washington Distinguished Teaching Award and the Marsha Landolt Distinguished Graduate Mentor Award, a Fulbright Scholar's Award to study in the United Kingdom, Fellow and Honors of the American Speech-Language-Hearing Association, and Editors Awards from Language, Speech and Hearing Services in Schools and the American Journal of Speech Language Pathology. Dr. Olswang has had extensive clinical and research experience with children with language disorders. Her first clinical experiences involved developing a screening program for preschoolers in Evanston, Illinois, as the U.S. Education for All Act (PL 108-446) was initially being implemented. Her clinical research career has focused on two primary groups of children with communication challenges: school-age children and children below the age of 3. Her school-age research has examined the social communication of children diagnosed with fetal alcohol syndrome as they participate in classroom activities. Her research with children below the age of 3 has focused on two specific populations: toddlers diagnosed with specific language impairment and infants diagnosed with moderate to severe disabilities. She has been investigating the efficacy of treatment with these children and their families, particularly attempting to determine readiness factors for predicting benefits from different intervention options. Her primary research efforts in the last several years have been investigating the efficacy and implementation of Triadic Gaze Intervention, which was designed to assess and teach gaze shift as an intentional signal of communication to very young children with disabilities and complex communication needs. This research has been dedicated to improving the engagement and communication between children and their families as they encounter the struggles associated with disabilities. Dr. Olswang's research has been supported by grants from the University of Washington, The Arc of Washington State, the U.S. Department of Education, the National Institutes of Health, and the Centers for Disease Control.

About the Authors

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Dr. Feuerstein is an Assistant Professor at the School of Communication Sciences and Disorders at the University of Central Florida. She obtained her master's degree in speechlanguage pathology at Boston University and her doctorate in communication sciences and disorders at the University of Washington. She completed postdoctoral training in the Department of Psychiatry and Behavioral Sciences at the Johns Hopkins School of Medicine, with an appointment to Kennedy Krieger Institute's Center for Autism and Related Disorders. Dr. Feuerstein is a certified speech-language pathologist who has practiced in a variety of pediatric practice settings, including early intervention, outpatient clinics, and inpatient rehabilitation. She is a member of the American Speech-Language Hearing Association, Neuro-developmental Treatment Association, International Society for Augmentative and Alternative Communication, and Society for Implementation Research Collaboration. Dr. Feuerstein's research interests center around evaluating the effectiveness of early communication interventions for minimally verbal children with neurodevelopmental disorders and examining mechanisms for moving empirically supported interventions into clinical practice. Her pre- and postdoctoral research has been supported by research awards from the American Speech-Language-Hearing Foundation, the University of Washington, and Kennedy Krieger Institute's Center for Autism and Related Disorders and by institutional training grants from the National Institutes of Health.

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Dr. Pinder is a speech-language pathologist who has specialized for the past 45 years in working with infants and children with neuromuscular disorders and oral motor/feeding and communication problems associated with those disorders. Dr. Pinder received her academic degrees from Hollins University, Boston University, and the University of Washington. Dr. Pinder is a founder and continues to consult at Children's Therapy Center in Kent, Washington, a neuromuscular center serving children birth to 18 and their families. She is a certified NDT instructor and teaches courses in the United States as well as internationally. She has also been an instructor at the University of Washington in the Department of Speech and Hearing Sciences. Dr. Pinder's awards include the University of Washington Distinguished Alumna award; Duncan Award for exceptional service for children with disabilities, their families, and their communities; Washington Speech and Hearing Association Award for Clinical Achievement; and the Neuro-Developmental Treatment Association Award of Excellence. Dr. Pinder's therapy is child centered and family focused and is based on a holistic perspective of development. Dr. Pinder is a member of the American Speech-Language-Hearing Association; Washington Speech, Language and Hearing Association; National Association of the Deaf; and the Neuro-Developmental Treatment Association. Dr. Pinder's research has focused on the development of early communication signals in young children with neuromuscular disorders and then on treatment efficacy in teaching those early signals to those same children. She has also worked on research projects focused on training parents and most recently on training clinicians working in homes with that same population.

SECTION

Understanding Early Communication Development and Triadic Gaze Intervention

CHAPTER **1**

The Child–Adult Dance and the Gift of Engagement and Communication

The first year of life is instinctively dominated by nurturing moments between babies and **families**, filled with holding, feeding, and socializing. Imagine the beautiful dance that takes place between adult and child as they become finely tuned partners learning to engage and communicate with each other. Children grow and thrive in the context of close and dependable relationships that provide a safe and predictable environment and encourage exploration (National Research Council & Institute of Medicine, 2000). Research has overwhelmingly demonstrated the importance of these first relationships to build a strong foundation for children's future social-emotional, language, and cognitive learning (Bakeman & Brown, 1980; Brazelton, 1982, 1988; Bruner, 1983; Kelly et al., 2008). The fundamental ingredient for these early moments is the reciprocal interaction (i.e., turn taking) that takes place between adult and child.

As the adult and child get to know each other, they become exquisite dance partners interacting throughout the day in all types of activities and situations. Arnold Sameroff and colleagues have described this dynamic back-and-forth behavior between child and adult in their well-accepted Transactional Model (Fiese & Sameroff, 1989; Sameroff, 1987; Sameroff & Fiese, 1990). The connection established between the adult and child, as shown in the photo in Figure 1.1, sets the stage and provides the context for all kinds of future learning. Regardless of the child's age, or the circumstances, these types of interactions capture the gift of engagement.

This chapter briefly describes the natural emergence of engagement and the development of early communication during the first year of life. The way in which child–adult interactions form the context for early learning is explained, including how the nature of these interactions supports not only communication but also learning across developmental domains. The chapter then describes in detail children's early communication, defining specific, conventional preverbal behaviors (i.e., **gaze**, gestures, vocalizations) that become intentional forms of communication. So much happens before children talk; this chapter ends with a discussion of how preverbal communication emerges and leads to first words and word combinations.



Figure 1.1. Early communication as illustrated by the eye contact and engagement between mother and infant.

EARLY ENGAGEMENT: THE CONTEXT FOR LEARNING

The context for early engagement, learning to communicate, and in fact, all future learning, is naturally present from birth. The caregiver holds the infant, and the stage is set. Engagement begins with the infant's first cries and whimpers; they serve to immediately engage the adult. These early **reflexive behaviors** effectively grab the adult and set up the context for interaction. As the days and weeks go by, these critically important exchanges continue. Gradually the adult begins to give meaning to the infant's behaviors of crying, cooing, gazing, and early smiling, responding to them consistently and, in turn, setting up dependable back-and-forth routines that the baby can trust (Adamson & Dimitrova, 2014).

These interactive routines will occur throughout all kinds of activities, including feeding, bath time, and social play, which then serve as natural opportunities for supporting engagement and shared attention between adult and child (Bruner, 1999; Dunst et al., 2000). Routines start simply via mutual exchange of gaze between the adult and infant as the infant is held. The adult gradually adds more to the interaction by starting to socially play with the infant, for example, by making sounds, tickling, and kissing. The adult eventually will introduce objects (e.g., food items, toys) during activities. Once this happens, the interaction between adult and child becomes more complicated and sophisticated, as the child has the opportunity to coordinate their attention to both adult and object (Adamson et al., 2014). During these early interactions, the adult is structuring the environment to encourage engagement and communication, and also is paying attention and responding to the child's efforts to connect. These profound interactions occur long before spoken language emerges; yet, they are the very interactions that support language development. During these interactive contexts, the child is learning to pay attention to people, objects, and relationships between them. They are also learning to listen and map the adult words onto these objects and actions. In fact, research has clearly shown that early engagement of these kinds, and specifically those involving coordinated joint attention among child, adult, and objects, is associated with later social-emotional, cognitive, and language development. (See Adamson & Dimitrova, 2014, and Mundy & Newell, 2007, for thorough reviews of this research.)

Engaged interactions between adult and child are critical for learning. The adult brings the necessary structure, providing opportunities for engagement but also skills for recognizing the child's signals of attention and interpreting the child's wants and needs. Of course, the adult needs a partner; research has shown the adult will only continue to engage if the child is an active participant in the exchange (Murray & Trevarthen, 1986). Let's turn now to examining more closely what the child brings to this learning environment and how these behaviors rope in the adult to create a magnificent turn-taking dance between child and adult, which shapes development.

CHILD BEHAVIORS AND THE EMERGENCE OF INTENTIONAL COMMUNICATION

Early communication behaviors produced by infants and toddlers begin long before first words. These **preverbal communication behaviors** typically include gaze, gestures, and vocalizations and emerge along a **communication continuum** in three phases: **preintentional**, **intentional**, and **symbolic communication** (e.g., Bates et al., 1975; Locke, 1993; Thomasello, 1999). Brady and

Reminder: A lot happens before first words!

colleagues (Brady et al., 2012; Salley et al., 2019) delineated this continuum of behaviors in the Communication Complexity Scale (CCS; 2012). The CCS was designed to observe and assess specific **prelinguistic forms** of communication in children and adults who are nonverbal. With this purpose, the CCS defines a sequence of conventionally recognizable preverbal behaviors (i.e., gaze, gestures, and vocalizations) that have been documented as preceding symbolic language (i.e., first words, signs, or symbols; word, sign, and/or symbol combinations).

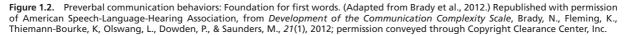
Gaze, because of its powerful and definitive interactive signal, serves as the anchor behavior in the continuum, moving from single focus, to dual focus, to triadic focus. As will be described, gaze can be accompanied by gestures and vocalizations to further clarify the engagement and message. As children develop, frequency and complexity of these behaviors increase (Salley et al., 2019). Figure 1.2 illustrates the continuum of preverbal behaviors, which will serve to guide the following description of early communication, from preintentional, to intentional, to symbolic.

Preintentional Communication: Single Focus

An infant's very first behaviors are **reflexive behaviors** and include eye gaze, body orientation and movements, and bodily noises that suggest engaged and disengaged infant states (Kelly et al., 2008). During the first 3 months of life, the engaged behaviors include, for

Preintentional

Single focus: looking and sustaining gaze to a person OR an object Gaze alone Gaze + gestures OR vocalizations Gaze + gestures AND vocalizations Dual focus: looking from an object to a person OR a person to an object Gaze alone Gaze + gestures OR vocalizations Gaze + gestures AND vocalizations Triadic focus: looking back and forth between an object and a person (person-object-person OR object-person-object) · Gaze alone Gaze + gestures OR vocalizations Gaze + gestures AND vocalizations Intentional



example, having eyes open, looking intently, feeding, or making sounds of contentment. Disengaged behaviors, in contrast, might include grimacing, squealing, crying, or turning away. Lots of guessing occurs during these early months as parents try to determine their children's wants and needs. Over time, the infant becomes more organized in response to the environment, and gross movements become increasingly more precise as motor control develops.

As children naturally develop, their behaviors become more distinct and recognizable. As such they are more purposeful. Emerging first is a clear single focus orientation and gaze to an adult and then gradually to objects. This can be observed as early as age 4 months as children develop increased head control. The child will begin to move from being oriented to an adult, to glancing at the adult, to sustaining a gaze with the adult. Think about how a child will begin staring at the adult's face. This single focus, which is an early form of social joint attention between child and adult, gradually begins to include objects (e.g., bottle, rattle): quickly or passively glancing at objects and eventually maintaining an active look toward them. By around 5 months of age, a child's trunk control allows for more purposeful and regulated gazing, even accompanied by gestures (e.g., leaning, reaching) and vocalizations (e.g., vowel sounds, consonant-like sounds). However, the child at this stage does *not* link the adult to the object. Consider how a child might begin paying attention to the pet dog or staring at the mobile above their crib. The child might make sounds and try to reach, but the focus is clearly on only the object or the adult, one at a time. These are certainly **purposeful behaviors**, but they do not yet indicate intentional communication.

Preintentional Communication: Dual Focus

Single focus gradually moves to the child purposefully following the adult's gaze to other people or objects. This emerging expression of joint attention is always exciting as it appears the child is noticing more about their world. The child will increasingly and more definitively reach, at first to the adult and then to others, including objects. Think about a child reaching for the bottle during feeding or splashing the water during bath time. This has been termed **dual focus**. Note how the gaze becomes more complex as shown in Figure 1.2. Gaze and gestures will increasingly be accompanied by vocalizations, which too are becoming more complex (e.g., consonant–vowel combinations).

Between 8 and 10 months, children's production of these behaviors noticeably increases in frequency and complexity, which in turn expands their social, joint attention moments with others. These behaviors, although becoming more and more frequent and purposeful, are not necessarily meant to intentionally communicate with others; yet, they serve to make interactions more readable and gratifying. Consider a child gazing at a mobile and trying to reach for it while having their diaper changed. The parent might regard this as a comment on the mobile or a request for it, but there is really no evidence for intentional communication on the child's part. Yet, the adult will typically acknowledge these behaviors with an attentive remark. As described previously, these are the early forms that build a child's ability to engage with others. As the child increases their behavioral repertoire, the adult will find these potentially communicative behaviors easier to recognize and interpret.

Families will respond more frequently to discrete, clear behaviors and less frequently to the more global, hard-to-read ones, thereby shaping the infant's more refined communicative attempts. For example, families will more readily interpret a child's looking at a bottle and vocalizing "uh uh uh" while reaching toward it as a request for wanting a drink than they will interpret a child's quickly looking at the bottle while arching their back and fussing as a request. As the child gains and uses more conventional and readable behaviors (more intent gazes, more definitive gestures, and more varied vocalizations), the adult will be more consistent in responding. Through this back-and-forth, the child begins to learn that these early behaviors cause the adult to do something. This is the magical turn-taking dance between adult and child that provides the structure of language learning. Mean-while, the child is also becoming increasingly interested in objects in the environment and bringing them into the interaction.

During this period of development, children are more purposely acting on their environment (people and objects) but are not yet linking the two as is necessary in intentional communication. Not until the child begins to knowingly direct their behaviors to another person, for the purpose of influencing that person, is the child said to be communicating with intentionality (Bakeman & Adamson, 1984; Bates et al., 1975; Locke, 1993; Thomasello, 1999). What does intentional communication look like?

Intentional Communication: Triadic Focus

Some time around 9–10 months of age, a dramatic milestone can be observed; the child begins shifting their gaze back and forth between an adult and an object or event of interest; this is called **triadic focus**, as indicated in Figure 1.2. The significance of triadic gaze, defined by a clear three-point gaze shift, or back-and-forth looking (often accompanied by gestures and vocalizations), between an adult and an object or event of interest, is the behavioral indication that the child is linking the adult to an action or object for the

purpose of getting the adult to act in some way. This has been described as **intentional communication** prior to first words (Bakeman & Adamson, 1984; Bates et al., 1975; Locke, 1993; Trevarthen & Hubley, 1978).

As a child is moving from dual to triadic focus, they are also experiencing many opportunities to explore and act on objects, gaining knowledge about making things happen, and learning about their power to cause an effect on the world (i.e., means–ends relationships). This object experience coincides with the exposure the child is having to adults responding consistently to the child's preintentional communication attempts. The coming together of the child's knowledge of objects and adults, and relationships between them, as well as the adults' responsiveness to early behaviors, appears to facilitate the emergence of intentional communication (Bakeman & Adamson, 1984; Bates et al., 1975; Locke, 1993; Trevarthen & Hubley, 1978).

Salley and colleagues (2019) observed that the frequency, complexity, and readability of children's behaviors continue to increase through 12 months of age, making communication a more active and reciprocal part of interactions between children and adults. Families become better at recognizing children's behaviors and interpreting their intentions. The exchange reflects a dialogue between children and others, even before first words are spoken. The triadic gaze milestone not only marks intentionality, but it has also been associated with significant neurological change and has been shown to be predictive of later language development (Beuker et al., 2013; McCathren & Warren, 1996; Mundy & Newell, 2007; Mundy et al., 1990). **Triadic Gaze Intervention (TGI)** is named to acknowledge the significance of this early prelinguistic milestone and the importance of an intervention designed to facilitate its accomplishment.

A video montage of four children is provided in **Video 1.1, Typical Development,** to illustrate babies' typical development of preverbal communication behaviors. (This video, along with other videos illustrating communication behaviors and TGI components, is available on the Brookes Download Hub with the downloadable resources for this book. See "About the Video Clips and Downloads" at the front of the book for details about how to access this content.)

The children in Video 1.1 produce conventional nonverbal behaviors of gaze, gestures, and vocalizations as they emerge during the first 12 months of life. As you watch these children interact with an adult (or in one case, the baby's older sibling), note how they use their behaviors to engage and communicate. The video clips are arranged in order of sophistication, illustrating the continuum of behaviors listed in Figure 1.2, moving from single focus, to dual focus, and ultimately to triadic focus. The sequence of videos also illustrates emerging postural stability that supports the children's developing communication behaviors.

The first two children in the montage primarily use single focus toward an object to communicate. The first child is given a choice between a stuffed animal and a rattle. Note how he looks between the objects and uses single gaze alone to make a choice. The second child is offered a ball for play. She also uses single focus but adds a lean and reach to communicate. The next two children are developmentally further along the communication continuum. The third child in the montage is offered a choice between a ball and a ducky. Note her quick back-and-forth looking between objects and her sister as she reaches toward the ducky. Though her behaviors are quick, they appear more purposeful. The fourth and final child in the video montage demonstrates the most sophisticated communication behaviors by producing a clear triadic gaze when choosing between a stuffed animal and a tambourine. Note how the child scans the objects and includes the adult, finally,

looking between the stuffed animal and Mom while reaching and vocalizing. The montage of the four children illustrates how preverbal behaviors, and, therefore, the communicative attempts, become clearer and clearer from the first video clip to the last. With the clarity, the communication partner has an easier and easier time interpreting the child's intention. This video montage is meant to illustrate typical development and serve as a reference for understanding preverbal communication and all that happens before first words.

Symbolic Communication: Emergence of Word Approximations and First Words

As children reach their first birthday, their behaviors become even more discrete and clear, including vocalizations that move from simple consonant–vowel productions to more complex sound combinations. Eventually these sound combinations become forms that resemble word approximations and, from here, first words. So, too, do gestures increase in variety and clarity, moving from leaning and reaching, to showing, giving, and pointing. These vocal and gestural behaviors that accompany triadic gaze contribute to an explosion of communicative activity. Children's efforts to communicate grow exponentially, as do the clarity and meaning of their intentions. Between 15 and 18 months, families attribute the production of many words to their children, along with a variety of **communicative intentions**. The turn taking in communication becomes almost second nature between children and adults: Asking and answering becomes part of most, if not all, routines. Preverbal development of gaze, gestures, and vocalizations is rich and predictable in form, moving from hard to read and interpret, to clear signals of intentional communication.

Communicative Intentions

Coggins and Carpenter (1981) and Carpenter and colleagues (1983) identified a variety of intentions that children express prior to first words, moving from simple preverbal behaviors to more complex ones. Coggins and Carpenter (1981) demonstrated that children use these early behaviors for protesting, requesting (objects, actions, and information), commenting (on actions and objects), acknowledging, and answering. In a small longitudinal study of mothers interacting with their children between the ages of 8 and 16 months, Carpenter and colleagues (1983) found that preverbal forms of protesting, requesting, and commenting were observed most frequently. This work demonstrates that gaze, gestures, and vocalizations can be reliably observed and interpreted as expressing a variety of communicative intents. Table 1.1 provides examples of these early communicative intentions and illustrates why and how preverbal children communicate prior to first words. The literature clearly supports the developmental progression of preverbal behaviors and the way children use these behaviors to communicate. This development is crucial as a foundation for launching first words, signs, and/or augmentative and alternative communication symbols.

The emergence of the child's behaviors occurs during the natural turn-taking interactions between child and caregiver as described previously. It is the back and forth, give and take of engaged, reciprocal interactions in the context of daily activities around social events and object play that provide the foundation for learning language. Important to remember is that the success of the interaction is the give and take between adult and child. Both the adult and child are active participants in the interaction and meaningfully contribute to maintaining a successful connection (Murray & Trevarthen, 1986). The clarity of the child's behaviors has been found to be extremely important for the parent to be

Common communicative intentions	Example of preverbal behaviors	Apparent meaning
Protesting	Mother offers her child a bottle. Child looks away, pushes bottle away, and fusses.	"I don't want that."
Requesting		
Actions	Child and mother are playing peekaboo. Mother is covering and uncovering her eyes. Mother stops. Child looks at her mom, gets fidgety, squeals, and vocalizes "uh uh uh."	"I want more peekaboo game."
Objects	Child looks at and points to a book on a shelf, looks at his mother, looks back to the book, and vocalizes "da" persistently until mother gives the book to the child.	"Give me that book."
Commenting		
On actions	Child looks at brother doing somersaults on the grass. Child smiles, squeals, and waves her arms each time her brother tumbles.	"Look at that!"
On objects	Dog comes and sits beside the child. Child looks at the dog, reaches toward the dog, looks at mother and then back to the dog, and vocalizes "da."	"Dog."
Answering	Mother asks her child if she wants to swing. Child looks at mother and vocalizes " <i>ah ah</i> ."	"Yes, I want to swing."

Table 1.1. Examples of preverbal communicative intentions

Sources: Coggins & Carpenter, 1981; Carpenter et al., 1983.

able to fulfill their role in providing feedback to the child (Brazelton, 1982; Bruner, 1982). For some children with disabilities, behaviors are limited and, in turn, interactions with families disrupted. Children with motor, social, or cognitive challenges may have particular difficulty producing conventional early preverbal behaviors, resulting in **caregivers** being challenged in deciphering and interpreting what their children want and need. When this happens, the rhythm and synchrony between adult and child during interactions can be interrupted. In the case of prolonged disturbance of reciprocal interactions, as might occur with children who have moderate to severe disabilities, the parents may become less responsive to the children's attempts. Finally, in addition to the early disruption of the social-communicative interaction, the child's experiences with objects may also be affected. The result ultimately may put a child's development in jeopardy.

CONCLUSION

A lot happens in communication development prior to first words. The beautiful dance that occurs between adults and children as they interact during the first 12 months of life reflects children's gradual development of behaviors (e.g., gaze, gestures, vocalizations) that caregivers recognize and interpret as early forms of communication. The dance reflects ongoing turn taking, with caregivers better able to read their children's behaviors and children increasingly producing more frequent and complex combinations of behaviors. Both become skilled at reading and responding to each other. For some children with disabilities, behaviors may be challenging to produce and, in turn, will interfere with their ability to engage and communicate with others. Triadic Gaze Intervention, as described in this book, is designed to address breakdowns in the child–adult dance and provide a strategy for bringing the partners back into synchrony. We turn now to a discussion of children with disabilities, their possible challenges in engaging and communicating, and available approaches to support these children and their families. "An evidence-based, practical, and inspiring guide to Triadic Gaze Intervention. This foundational key will open doors to successful engagement for families of young children who previously struggled to connect with others." —Gay N. Burton, M.S., PT, Program Director, Boyer Children's Clinic

"While the TGI protocol was being developed and refined, it was amazing to see the impact it had on therapists as well as the families they were working with. . . To now have this protocol available in book form is a HUGE resource for the field!" —Jon Botten, CEO, Childhaven

"This book is an outstanding example of evidence-based practice that is accessible and extremely applicable for all practitioners serving clients with basic communication needs." —Cynthia J. Cress, Ph.D., CCC-SLP, Associate Professor, Communication Disorders, University of Nebraska-Lincoln

any children with disabilities and their families struggle to connect early in life and need support developing early communication skills—and now there's a comprehensive resource to help birth-to-three practitioners deliver that critical support. This accessible guidebook will help professionals master the power of **Triadic Gaze Intervention (TGI)**, an evidence-based strategy that supports the development of early communication behaviors—gaze, gestures, and vocalizations—in young children with disabilities. By learning to use a straightforward protocol, practitioners will have useful techniques for helping caregivers engage young children during everyday routines and build their preverbal communication skills.

READERS WILL LEARN HOW TO:

- Implement the six elements of the **PoWRRS-Connect protocol** for delivering TGI
- Help children make progress toward IFSP goals related to communication and engagement
- Tailor the protocol for individual children with a range of disabilities and needs, including motor, sensory, or social impairments
- Embed opportunities for communication and engagement into each family's authentic routines
- Facilitate strong collaborative partnerships with caregivers

ABOUT THE AUTHORS: **Lesley B. Olswang, Ph.D., CCC-SLP**, is Professor Emeritus in the Department of Speech and Hearing Science at the University of Washington. Her 40-year tenure included research investigating the benefits of intervention designed to address the language and communication challenges facing young children with varied abilities. **Julie L. Feuerstein, Ph.D., CCC-SLP**, is a speech language pathologist and an Assistant Professor at the School of Communication Sciences and Disorders at the University of Central Florida. Her research and teaching focus on early communication for young children with neurodevelopmental disorders. **Gay Lloyd Pinder, Ph.D., CCC-SLP**, is a speech language pathologist who has specialized for the past 45 years in treating infants and children with neuromuscular disorders.





PRACTICAL MATERIALS INCLUDED:

Videos, handouts, and checklists available online!